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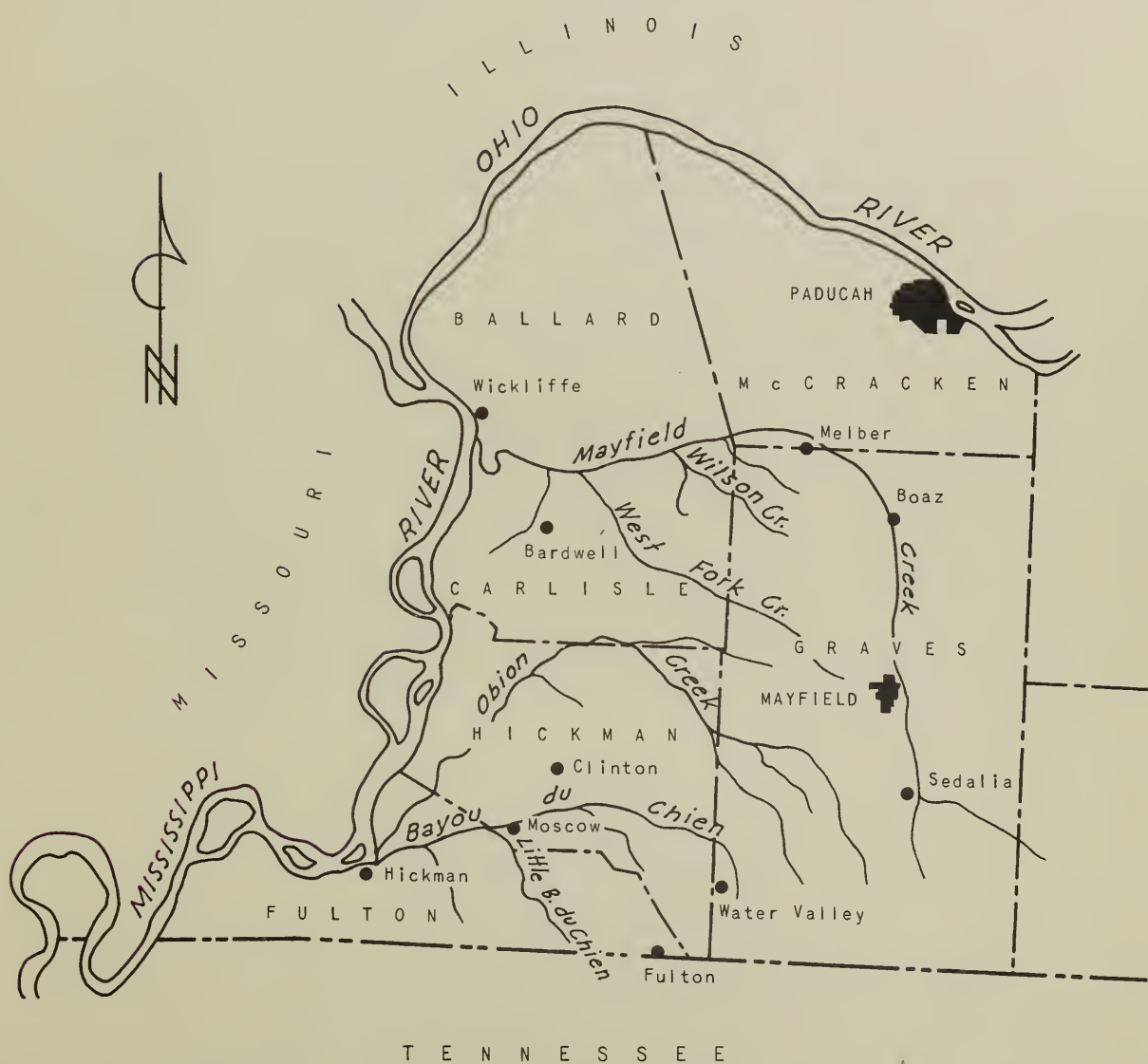
# WEST KENTUCKY TRIBUTARIES

(Mayfield and Obion Creeks and Bayou du Chien)

of

## MISSISSIPPI RIVER AND TRIBUTARIES

### PROJECT STUDY







WEST KENTUCKY TRIBUTARIES PROJECT

(KENTUCKY)

MAYFIELD AND OBION CREEKS AND BAYOU DU CHIEN  
MISSISSIPPI RIVER AND TRIBUTARIES PROJECT REVIEW

REPORT ON  
PRESENT AND ANTICIPATED AGRICULTURAL CONDITIONS

Prepared by The  
U. S. Department of Agricultural for the Mississippi River Commission

Soil Conservation Service  
Lexington, Kentucky  
January 1957



## AUTHORITY

This report has been prepared by the Soil Conservation Service, U. S. Department of Agriculture, covering studies made under authority of Section 6, Public Law 566, 83d Congress and upon request of the Mississippi River Commission. The basis for study was agreed upon as set forth in the Project Study Statement dated April 4, 1956.

## AGENCY PARTICIPATION AND RESPONSIBILITIES

The U. S. Forest Service, the Agricultural Research Service, and the Soil Conservation Service have each participated in this West Kentucky Tributaries portion of the Mississippi River and Tributaries Project Study as outlined in the February 2, 1956 U. S. Department of Agriculture Memorandum of Understanding. Limited amounts of assistance were received from the Kentucky Extension Service and other agencies.

The Agricultural Research Service has been responsible for developing field crop and livestock commodity price data, field crop and livestock enterprise production cost data, interest rates and procedures for capitalization, amortization and discounting, and has assisted the Soil Conservation Service in studies of field crop and pasture yields and in over-all economic procedures. All woodland yields, values and costs were developed by the Forest Service.

The Soil Conservation Service, through the office of the Kentucky State Conservationist, has in general been responsible for coordinating and conducting the study and preparing this report. It has classified the soils of the area in accordance with the major soil groupings. It has estimated the extent and cost of farm drainage systems.

The Soil Conservation Service in Kentucky prepared a special field schedule (see sample, following page) to use in interviewing selected reliable farm owners and operators in the project area. These selections were made so as to include several samples of each soil unit within each reach. These schedules were used to determine land use, yields, drainage participation, and possible land conversions under present, future without project, and future with project conditions. Approximately one hundred (100) schedules were taken and summarized by zone and reach. In addition, land use (for more accurate crop distribution) was outlined on aerial photographs to include from 30 to 80 percent of the open land area in the various zones and reaches. These summaries were used as a guide by work unit conservationists, soil scientists, farmers and other agricultural workers to base their estimates of present and future conditions pertaining to crop distribution, yields, land conversion and drainage participation.

SAMPLE  
MISSISSIPPI RIVER TRIBUTARIES PROJECT  
KENTUCKY SCHEDULE

Farmer's Name John Doe Tributary Obion  
Photo Number 42A-29 County Hickman  
Zone B Taken By JLA  
Reach 2 Date 7-2-56

Total Open land in Floodplain 68 ac.

OPENLAND SAMPLE:

Letter Code of Sample Area	A	B	C
MRT SOIL UNIT	7	7	8
Acres in Sample Area	10 ac.	20	6 ac.
Portion of Sample Area Now Drained (AC)	10 ac.	10	0
Present Land Use (1956)	Pasture	Corn	Pasture
Present Yield Per Acre (Avg.)	6 AUM	50 bu.	4 AUM
Expected Future Drainage without Proj.(Ac.)	0	0	0
Future Land Use Without Projects (Ac.)	Pasture	Corn	Pasture
Future Yield Without Project	6 AUM	50 bu.	4 AUM
Expected Future Drainage With Proj.(Ac.)	0	10	6
Future Land Use With Projects (Ac.)	Corn	Corn	Soybeans
Future Yield With Project	60 bu.	65 bu.	25 bu.
Total Woodland in Floodplain:	<u>20</u>	Clearing Costs (Per.Ac.) <u>\$60.00</u>	

1. Acres to be cleared without project 0
  - a. Portion of this to be drained (Ac.) 0
  - b. Land Use Expected after clearing 0
2. Acres to be cleared with project 5 (Locate cleared area on Photo)
  - a. Portion of this to be Drained(Ac.) 5
  - b. Land Use Expected after Clearing Pasture



## METHOD OF COMPUTING AGRICULTURAL VALUES CREDITABLE TO PROJECT

Data presented in this report are intended to portray three different situations with respect to land use, cropping patterns, crop yields, etc. - (1) the current situation, (2) the future situation without the proposed project, and (3) future conditions with the proposed project. The basis for computing agricultural benefits in this report is the difference in crop values between the second and third situation listed. The major reason for this type of calculation is that it provides a systematic means of excluding non-project influences which are expected whether a project is installed or not. Because of current land development operations and expected changes in commodity price and price-cost relationships, for example, future land use and cropping systems without the project may be different from present. This difference is not credited to the project.

### LIMITS OF APPLICATION OF ESTIMATES

The estimates cover an appraisal of the agricultural values and costs that can be expected as a result of agricultural drainage in association with installation of the proposed project works. However, the data includes no estimates of flood damage reduction, its values or costs, though the land use and cropping estimates reflect the flood protection that would be afforded by the proposed project works. Average flood-free yield estimates have been used throughout the study so that they can be used as a basis for calculation of flood damage reduction by the Corps of Engineers, based upon its own hydrologic studies. The Department of Agriculture, having made no hydrologic studies of its own in the area, has developed estimates on the basis of hydrologic data provided by the Corps of Engineers. This data included the delineation of limits of project effectiveness, and maximum overflow that established the conditions for project study. The Department of Agriculture has classified and grouped the soils of the project area according to similar physical characteristics as a basis for crop yield and land conversion estimates. Further studies may result in revised hydrologic data that would require modification of the agricultural data contained herein.

### DESCRIPTION OF PROJECT

The West Kentucky Tributaries Project consists of proposed channel enlargement and improvement on Mayfield and Obion Creeks and Bayou du Chien in Western Kentucky. These three creeks cover portions of Ballard, Carlisle, Fulton, Graves, Hickman, and McCracken Counties (see cover map). Total bottomland involved in the project is 89,979 acres.

Each creek was divided into reaches. Reach 1 on Mayfield Creek extends from its confluence with the Mississippi River to West Fork Creek; Reach 2, from this point to the confluence with Wilson Creek; Reach 3, from Wilson Creek to the ICRR trestle 1 mile west of Melber; Reach 4, from this point to Boaz; Reach 5, from Boaz to Sedalia. Obion Creek was divided into two reaches: Reach 1 extending from its mouth to KY. 58, about 6 miles Northwest of Clinton, and Reach 2 from this point upstream to the confluence of Obion Creek

with Brush Creek. Reach 1 of Bayou du Chien extends upstream from its confluence with the Mississippi River to the confluence with Little Bayou du Chien 1 mile East of Ky. 127; Reach 2, from there to Water Valley. Each reach may contain one or more zones.

On Mayfield Creek there are 10,496 acres in Zone C, Reach 1, (flooded by Mississippi River) and 2,749 acres in Zone C, Reach 5, (headwater area) which will not receive benefits from the project. There is a total of 19,154 acres in the six B Zones of Mayfield Creek which may receive both floodwater reduction and drainage benefits. The corresponding six A Zones total 5,386 acres which will receive only drainage benefits from the proposed project.

The C Zone of Bayou du Chien, (Flooded by Mississippi River) contains 15,005 acres with 3,299 acres in the B Zone and 1,803 acres in the A Zone.

Obion Creek contains 15,965 acres in the lower C Zone, (Flooded by Mississippi River); 1,868 acres in the upper C (headwater) Zone; 10,856 acres in the B Zone, and 3,398 acres in the A Zone.

The present drainage condition in the upper half of Zone B, Reach 2, Obion Creek, is such that no future agricultural improvement in the floodplain can be expected until suitable farm drainage outlets are made available. Bayou du Chien (Reach 2, Zone B) and the lower B Zones of Mayfield Creek are becoming progressively wetter and within a few years it appears that normal crop production will be impossible due to the continuing sediment deposits in the main stream channel.

There is, at the present time, considerable soil erosion on the uplands surrounding the three West Kentucky Tributaries. This is due to improper land use, lack of complete conservation farming practices and especially the susceptibility of these local loess soils to erosion. These sediments are being deposited not only at the base of originating slopes, but are also carried on down to the floodplains and channels of these tributary streams. There was no specific nor detailed sediment study carried out on the West Kentucky Tributaries. A short reconnaissance was made by Corps of Engineers and Soil Conservation Service personnel to determine the source of some of the sediment deposits. This field trip seemed to indicate a large sediment producing area on Obion Creek above the confluence with Brush Creek. By mutual agreement of both agencies, it was decided to terminate channel improvement at this point.

There have been, in past years, several attempts at drainage improvements in these West Kentucky Tributaries by local organizations but none of the improvements are satisfactory at this time. The land-owners of the Obion Creek have recently organized into the Obion Creek Conservancy District. This Obion Creek Watershed has also been designated for consideration and study by the Soil Conservation Service under Public Law 566.



General farming predominates throughout the project area. Major crops of the bottomlands, where adequately drained, are corn, soybeans, hay and pasture. In the poorly drained areas, the present level of agricultural development is low and much of this land has remained in or reverted to woodland. Because of the flooding hazard and varying drainage conditions in portions of the project area, the crop returns are highly variable and often low resulting in large areas of land remaining idle for varying periods of time. In the lower half of all three creeks, from 80 to 90 percent of the farms are large (over 260 acre size) while in the upper half of the creeks the reverse is true; that is, from 80 to 90 percent of the farms are small.

The project, as proposed, will primarily benefit agriculture and benefits will accrue principally from higher yield of crops already being grown due to improved farm drainage, and also from some land conversions to more productive crops.

### SOILS

Imperfectly and poorly drained, medium textured alluvial soils from loess residuum (soil units 7 and 8 respectively) predominate throughout the bottomland in most reaches of all creeks. They cover about 3/4 of the entire project constituting nearly all land in Zone A, over 90 percent of the land in Zone B, and about 50 percent of the land in Zone C. Extent of these soil units (7 & 8) are nearly equal (See Table I). The remaining 10 percent of the land in Zone B and over 3 percent of Zone C, is in swamp or water area. About a third of the land in Zone C is imperfectly and poorly drained soils with clay or clay loam textures, with the remaining portion being of medium texture or better drained.

Both the imperfectly and the poorly drained soils (Units 7 & 8) are freely permeable but suffer from a fluctuating high water table.

The imperfectly drained bottomlands of soil unit 7 have brown surfaces and mottled gray, yellow, and brown subsurface layers. They have a moderate to high productive capacity. About 3/4 of the area of the soils in this unit is open. The highest production increment for drainage and flood reduction would result on these soil areas. The poorly drained bottomland of Unit 8 is dominantly gray and strongly mottled throughout, acid and low in organic matter content. These soils have a fair to moderately high productive capacity when adequately drained. Because of flooding damage and lack of drainage about 3/4 of the area of the soils in this unit is wooded. A substantial production increment from drainage and flood reduction would result in these soil areas.

The portion in Zone C of imperfectly and poorly drained soils is about 85% wooded because of backwater standing on them for long periods. The soils in Units 1, 2, and 6 constitute about 15% of the total area. They are somewhat poorly drained Mississippi River bottomland (Unit 1 - 9% of area) and terraces (Unit 2 - 10% of area) in addition to having a surface texture rather difficult to cultivate and

being subject to periodic or lengthy overflow or backwater, have also rather slow internal drainage. They are inherently productive and high yields of adapted crops can be obtained when surface water accumulations are removed and drainage systems installed. Soils in Unit 6 (5% of area) resemble those in Units 1 and 2, except that the surface texture is not so fine or heavy and is more satisfactorily worked.

Soil Units 5, 9, 10, 11, and 13 constitute only about 8% of the total project, all of this in Zone C which is outside of the area of benefit from the project. Unit 5 (3.7% of project) is moderately well to well drained Mississippi River bottomland soils, mostly open, productive and do not need drainage. Units 9 and 10 are moderately well to poorly drained loess terrace soils that are covered yearly by backwater (3.3% of area.) They have fragipan development in the subsoil at depth of from 1 to 3 feet. Unit 11 includes the sandy, excessively drained area in the bottomland and total with unit 13 (river wash sand) about 1 percent of the area.

#### LAND USE

The entire project area of the three West Kentucky Tributaries consists of 45% open land and 55% woodland according to current Corps of Engineers data. The Reach 1, C Zone, contains much higher amounts of woodland, ranging from 73 to 78%, while the A Zones contain only from 18 to 30% woodland. (See Table I's).

The C Zones, especially on the better drained soils of the Mississippi floodplains, there is at present a slight trend toward conversion of some woodland to cropland (principally corn and soybeans). The reverse is generally true in the B Zones, particularly in the lower reaches; some cropland and pasture land is being allowed to revert to woodland. This woodland encroachment on cropland is allowed because the drainage situation is becoming progressively worse and causing a very low crop net income.

The open floodplains along the Mississippi River are almost always cropped in either corn or soybeans while the open floodplains up in the tributaries are principally in pasture, hay, corn and soybeans.

This area contains some of the best timber that will be found on farm woodlots in the Delta tributaries. Except in a few limited areas, such as Zone A-Reach 2, Obion Creek, recent cutting has been moderate to light. A good pole size stand, made up mainly of desirable species replaces sawtimber and provides the basis for continued timber harvests. Fire and grazing damage, while present, are relatively light compared to many portions of the Mississippi Delta. Practically all of the area is good timber growing land. Some old fields were noted which have reverted to woodland within the past 10 to 20 years and are well stocked with gum and ash supplemented by cottonwood, maple and birch.



There is evidence of an appreciation for the forest crop. Forest protection has been given attention. Average age of sawtimber stands is about 50 years and although annual cutting is taking place, there has been no widespread devastation of second growth stands.

Markets are largely confined to sawlogs. Several good portable sawmills are operating locally and some of the better logs are hauled or shipped to larger mills tributary to the area. A hickory handle mill is operating sporadically. Markets and sustained income can be expected to continue on an increasing scale stabilized by conservative woodland management.

### CROPPING PATTERNS

Type of crop and cropping patterns vary with the soil mapping unit and especially with the degree of drainage. Well drained soils are used principally for corn and hays while the poorly drained soils are used mainly for soybeans and grasses. Up in the tributary bottoms, on the better soils, a continuous corn crop is often grown year after year. In other fields a rotation of corn and soybeans may be practiced while a longer rotation of hay (several years) and then corn or soybeans sometimes exists. Many of the pasture fields are semi-permanent, being cultivated in corn only occasionally and then returned to a pasture condition (usually a Kentucky Fescue-Ladino clover mixture).

Generally when woodland is cleared, the land is cultivated (mostly corn) for several years and commonly idle land is converted back to cultivation rather than pasture.

The B and A Zones have an almost identical cropping pattern, consisting of hay, pasture, corn and soybeans, while the C Zones (Reach 1) seldom are cropped in anything other than corn and soybeans. In the future, without project, only slight changes will take place, some clearing in the C Zones, while some acreage will return to woodland in the B Zones. See Tables II, III, and IV for crop distribution.

### YIELDS

Field crop and pasture yields are estimates of yields that are currently being attained or that can be expected to be attained by average producers, using a reasonable level of management, under future conditions, with and without drainage. All yields, in all project zones, are for average flood-free years. Within Zone B, under present, future without project, and future with project conditions, there are varying percentages of total acreage that is or would be drained. These percentages were used in computing weighted yields for Tables II B, III B, and IV B for each crop.

Computations for Zone A are only for net acreages to be drained, and since none of the acreage in Zone C will be drained, weighting was unnecessary in these two zones.

Woodland yields are based upon studies conducted in the area by the U. S. Forest Service. Yields are based on average growth rates applicable to the species and stand size and ages found in the area. The yields represent the units of wood products and value that will be attained on the average for the next 50 years under the level of management that can be expected to prevail based on present findings in the project area. By reason of past conservative forest land use, high yields are immediately attainable.

### PRICES

Woodland Production values are based on 1955 prices f.o.b. mill or siding. These prices are used, since it appears to be a realistic price projection for future conditions.

Projected field crop and livestock prices used in this report were developed jointly by the Agricultural Research Service and Agricultural Marketing Service. Projected prices have been used, based on most likely long-range expectations, and estimates of cropping patterns have been influenced by the assumption that such prices will prevail. Projected prices were developed from studies of the prospective conditions of product supplies and requirements. In order to remove the effects of price support programs and in order to reflect the economy of production in competing areas, the projections assume the eventual attainment of a relatively free market for agricultural products.

In evaluating the long-run aspects of deferred land development and improvement projects, the use of the projected prices makes it unnecessary to restrict the acreage of "control" crops in crop income computations.

Crop acreages shown for future conditions are not compatible with a projection of current prices into the future, however. Neither do they seem to portray attainable goals for restricted crops during the surplus disposal period in the immediate years ahead. Therefore, if current prices were to be used in projection of future project conditions, or for projects where early construction is contemplated, there would appear to be little or no justification for increasing the acreage of surplus or "control" crops over current allotment acreages. Farmers in this area are planting corn to the extent of their current allotments (or over). Since this is true, no acreage increases can logically be anticipated in the future due solely to physical improvements whenever current prices and control programs are assumed to prevail.



## CROP PRODUCTION COSTS

Production costs for forest products are based on costs prevailing in 1955. These costs are estimated to be reasonable level for projection to future conditions. Costs cover conversion of standing timber to raw wood products at mill or siding and a cultural and crop management cost consisting of an amortized annual charge for timber stand improvement work, an allowance for management and supervision by owners, their representatives, and foresters and forest protection.

Production costs for all field crop and livestock enterprises were developed from a study of large and small Mississippi River bottomland farms. Since production costs by enterprises are not the same for large farms as for small, these costs were weighted in accordance with the proportionate acreage of large and small farms expected to exist in the project area under future conditions. Production costs, as used for project evaluation purposes, include all operational costs required to attain yield levels indicated in project cost tables (such as allowances for labor, power, machinery, materials and services required to produce and market the product), all farm overhead costs necessary in farm operation (except a charge for land), and an allowance for management expense which includes an estimated amount required for the operator's management and for any employed management personnel.

Land charges were omitted from the cost analysis because net returns to land were being determined for conditions with and without the project. Overhead charges (which include such items as a charge for buildings, upkeep of operational machinery, interest on investment, and insurance) and management charges were allocated to enterprises in proportion to the specified costs of production expended on each crop. Some production costs have been treated as variables with yield levels attained (most harvest costs, fertilizer usage, poisoning, etc.) while other costs have been assumed to be fixed regardless of yield (such as soil preparation, cultivation, and machine-picking cost). Preharvest, harvest, overhead and management costs have been computed separately to derive total crop production costs.

Production costs used for projections are approximately 96 percent of the 1955 level of costs incurred by farmers.

## NET CROP PRODUCTION RETURNS

The analysis of crop production by soil units, upon which these summary tables are based, indicate the gross value of production to be greater than production costs in this project. Returns to enterprises vary from one soil unit to another. In general, however, the corn enterprise shows the largest net returns to land, with soybeans, pasture (beef production), and hay following in the order listed. Higher yields, as expected, show larger net returns to land than lower yields for the same enterprise. Inasmuch as the

analysis assumes flood-free yields, consideration has not been given to the effect of flood damage on average annual net income.

#### LAND USE CONVERSIONS AND COSTS

Table VI shows the land use conversions that are anticipated from the influence of the West Kentucky Tributaries Project and development of the associated farm drainage systems. There are several categories of woodlands, amounting to about 35 percent of the total that are not considered for future conversion. Considerable conversions of woodland to pasture and general cultivated crops can be expected after major drainage outlets are provided for farm drainage systems. It is estimated that these conversions will all be profitable enough to be desirable from the standpoint of the owner and operator. If the operator secures the inducement of a reasonable income over and above his loss of present woodland value and his land use conversion and drainage costs, he will probably go ahead with land conversions rather than wait for a long period of years for deferred woodland income.

Items of conversion costs include all expense of putting land from its present state into condition to produce a crop or live-stock enterprise, with only normal production costs remaining to be incurred.

All capital costs of conversion have been amortized at 5 percent for a period of 50 years. All maintenance costs are included in Table VI.

#### FARM DRAINAGE SYSTEMS AND COSTS

Estimates of amounts and costs of farm drainage that may be expected to be installed after sufficient major outlets are constructed are tabulated in Table VII. These estimates anticipate that 78 percent of soil unit 8 and 86 percent of soil unit 7 will be drained and used for crop or pasture production. Approximately 5 percent of the land is used for farmsteads, roads, etc. An additional area, estimated at 12 percent of the total wet open land, will not be drained because of a lack of farmer participation.

Costs were computed from current levels. They include the installation cost required for farm drainage systems for satisfactory removal of surface water accumulations that are likely to occur for the various conditions of rainfall and run-off involved - (installation costs include construction, engineering and contingency). Cost estimates were based on all ditching and structural needs for systems to serve an average of one square mile. Estimates were also based on standard design data to fit conditions involved.

Farm drainage system capital costs have been amortized for a useful life period of 10 years at 5 percent. Maintenance costs, (as well as installation costs), varying with the soil mapping unit and the land use, have been added to the amortized annual equivalent



of installation cost to derive the annual cost of farm drainage systems. The life of the farm drainage systems was estimated to be ten years, principally because of soil conditions. Also, the low agricultural development of most of the project area would indicate a lesser attention to maintenance of farm drains. It includes large areas of from moderately wet to swamp lands, much of which will remain in woodland even after the proposed project.

#### GROUP DRAINAGE SYSTEMS AND COSTS

It was mutually determined and agreed that group drainage was not adaptable to this area. This is due principally to topography (relatively narrow valleys) and soil conditions above the proposed main channel improvements.

#### BENEFITS AND ASSOCIATED COSTS

Table IX summarizes net annual returns from Tables III and IV for Zones A and B, annual costs of making land conversions (Table VI) and establishing and maintaining farm drainage systems (Table VII).

Returns and gross benefit, and all associated cost items have been discounted, in last column of Table IX to account for an estimated ten year lag and buildup period to full installation and maintenance requirements and benefit accrual. This time length estimate was based on the slower progress and adoption of a portion of the farmers in the area to a new development; to a certain extent on the financial conditions of the farmers in the area; and on the time, after farm drainage is complete, to achieve desired yields.

#### SUMMARY

The West Kentucky Tributaries Project area has a low agricultural development due mainly to poor drainage conditions and flooding hazards. Only local attempts have been made in channel clean-out and clearing and none seems to be functioning satisfactorily at this time. Conditions are becoming progressively worse and without relief there will be little further agricultural development in the project area; but with the project, progressive and higher agricultural development can be expected. This assumes, of course, that farm drainage systems will be installed on wet lands.

In each reach and zone of the West Kentucky Tributaries project the net value of farm production was calculated for both future without proposed project and future with project. The difference between the two conditions is assumed to be due to project benefits (primarily drainage benefits). This benefit in dollars was calculated to be: Bayou du Chien \$32,956; Obion Creek \$67,941; and Mayfield Creek \$162,798. (See Project Area Summaries - Tables IX).

Yields for flood-free years have been used throughout this report. The Corps of Engineers, therefore, may need to modify the future without project values to account for flood damage. They may also need to modify future with project values to account for less than complete flood protection under project conditions.



MAYFIELD CREEK

Portion of

WEST KENTUCKY TRIBUTARIES

of

MR & T STUDY

SUMMARY TABLES





Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 State - Kentucky

TABLE I

Existing Land Use by Soil Mapping Units

Zone A - Drainage Calculations Only

Reach 2

Soil mapping unit	Open (Acres)	Wooded (Acres)	Total (Acres)
7	625	71	696
8	176	45	221
Subtotal - all soils	801	116	917
Water	-	-	0

Total - Reach 2, Zone A	801	116	917
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Zone A - Drainage Calculations Only

Reach 3

7	571	20	591
8	77	14	91
Subtotal - all soils	648	34	682
Water	-	-	-

Total - Reach 3, Zone A	648	34	682
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Zone A - Drainage Calculations Only

Reach 4

7	637	13	650
8	442	71	513
Subtotal - all soils	1,079	84	1,163
Water	-	-	-

Total - Reach 4, Zone A	1,079	84	1,163
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Zone A - Drainage Calculations Only

Reach 5

7	390	55	445
8	324	80	404
14	0	0	0
Subtotal - all soils	714	135	849
Water	-	-	8

Total - Reach 5, Zone A	714	135	857
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Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 State - Kentucky

TABLE I, Cont'd.

West Fork Reach

Soil mapping unit	Open (Acres)	Wooded (Acres)	Total (Acres)
7	873	215	1,088
8	15	47	62
Subtotal - all soils	888	262	1,150
Water	-	-	-
Total -West Fork Reach Zone A	888	262	1,150

Wilson Reach

7	450	53	503
8	86	23	109
Subtotal - all soils	536	76	612
Water	-	-	5
Total -Wilson Reach, Zone A	536	76	617
Total Soils- A Zones	4,666	707	5,373
Total Water - A Zones	-	-	13
TOTAL: ALL A ZONES			5,386

Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 State - Kentucky

TABLE I - Cont'd.

Existing Land Use by Soil Mapping Units

Zone B - Drainage and Flood Control Calculations

Reach 2

Soil mapping unit	Open (Acres)	Wooded (Acres)	Total (Acres)
7	890	152	1,042
8	810	1,990	2,800
13	7	11	18
14	-	432	432
Subtotal - all soils	1,707	2,585	4,292
Water	-	-	97
Total -Reach 2, Zone B	1,707	2,585	4,389

Zone B - Drainage and Flood Control Calculations

Reach 3

7	2,078	680	2,758
8	746	2,349	3,095
14	-	65	65
Subtotal - all soils	2,824	3,094	5,918
Water	-	-	131
Total -Reach 3, Zone B	2,824	3,094	6,049

Zone B - Drainage and Flood Control Calculations

Reach 4

7	1,753	535	2,288
8	1,396	2,028	3,424
14	-	83	83
Subtotal - all soils	3,149	2,646	5,795
Water	-	-	200
Total - Reach 4, Zone B	3,149	2,646	5,995

Basin- West Ky. Tributaries  
Project - Mayfield Creek  
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TABLE I- Cont'd.

Zone B - Drainage and Flood Control Calculations  
Reach 5

Soil mapping unit	Open (Acres)	Wooded (Acres)	Total (Acres)
7	496	67	563
8	301	138	439
14	1	43	44
Subtotal - all soils	798	248	1,046
Water	-	-	18
Total - Reach 5, Zone B	798	248	1,064

Zone B - Drainage and Flood Control Calculations  
West Fork Reach

7	704	424	1,128
8	35	60	95
Subtotal - all soils	739	484	1,223
Water	-	-	46
Total - West Fork Reach, Zone B	739	484	1,269

Zone B - Drainage and Flood Control Calculations  
Wilson Reach

7	246	47	293
8	36	43	79
Subtotal - all soils	282	90	372
Water	-	-	16
Total - Wilson Reach, Zone B	282	90	388

Total Soils - B Zones	9,499	9,147	18,646
Total Water - B Zones	-	-	508
TOTAL: ALL B ZONES	-	-	19,154



Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 State - Kentucky

TABLE I-Cont'd.

Existing Land Use by Soil Mapping Units

Zone C - No Project Benefits

Reach 1

Soil mapping unit	Open (Acres)	Wooded (Acres)	Total (Acres)
5	1,042	312	1,354
6	227	2,323	2,550
7	1,182	670	1,852
8	638	3,329	3,967
9	86	20	106
10	102	-	102
11	20	4	24
13	20	18	38
14	1	276	277
Subtotal - all soils	3,318	6,952	10,270
Water	-	-	226

Total - Reach 1, Zone C	3,318	6,952	10,496
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Zone C - No Project Benefits

Reach 5

7	1,895	351	2,246
8	299	109	408
Subtotal - all soils	2,194	460	2,654
Water	-	-	95

Total - Reach 5, Zone C	2,194	460	2,749
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Total Soils - C Zones	5,512	7,412	12,924
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Total Water - C Zones	-	-	321
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TOTAL C ZONES			13,245
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GRAND TOTAL - ALL SOILS	19,677	17,266	36,943
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GRAND TOTAL - ALL WATER	-	-	842
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GRAND TOTAL - PROJECT AREA	-	-	37,785
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Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - 2  
 State - Kentucky

SUMMARY - TABLE II A  
 (Zone for Drainage Calculations Only)  
 COMPUTATION OF AGRICULTURAL PRODUCTION  
 EXISTING CONDITIONS

Soil unit	Land use and crop distribution	Acres	Production	
			Unit	Per acre 2/ Total
All	Open land	706		
	Crops:			
	Corn	391	bu.	28 10,995
	Soybeans	-	-	-
	Hay	-	-	-
	Idle	15	-	-
	Pasture	264	lb.bf.	164 43,224
	Other 1/	36	-	-
	Forest land	110	-	-
	Total	811 3/		

- 1/ Farmsteads, farm roads, waste and non-agricultural.  
 2/ Calculated from columns 3 and 6, rounded to nearest unit.  
 3/ Total area, less 101 acres not needing drainage.

Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - 2  
 State - Kentucky

SUMMARY -- TABLE III A.

(Zone for Drainage Calculations Only)  
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS  
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Production		Value of production		Cost of production		Net return
			Unit	Per acre	2/ Total	Per unit	Total	Per acre	Total
						Dollars	Dollars	Dollars	Dollars
All	Open land	578							
	Crops:								
	Corn	236	bu.	36	8,476	1.45	12,291	30.99	7,314
	Soybeans	49	bu.	22	1,054	2.30	2,424	27.04	1,325
	Hay	29	ton	1.5	42.6	20.00	852	27.55	799
									53
	Idle	13		-	-				
	Pasture	215	lb.bf.	200	42,957	0.2004	8,608	20.59	4,426
	Other 1/	36	-	-	-				
	Forest land	59	-	-	-	12.33	727	6.50	384
	Total	637 4/					24,902		14,248
									10,654

- 1/ Farmsteads, farm roads, waste and non-agricultural.
- 2/ Calculated from columns 3 and 6, rounded to nearest unit.
- 3/ Calculated from columns 3 and 10, rounded to nearest cent.
- 4/ Total area less 229 acres not needing drainage and non-participation, and 51 acres estimated to remain in woodland.



Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - 2  
 State - Kentucky

SUMMARY - TABLE IV A  
 (Zone for Drainage Calculations Only)  
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,  
 AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Production		Value of production		Cost of production		Net return	
			Unit	Per acre	2/ Total	Per unit	Total	Per acre		Total

- 1/ Farmsteads, farm roads, waste and non-agricultural.  
 2/ Calculated from columns 3 and 6, rounded to nearest unit.  
 3/ Calculated from columns 3 and 10, rounded to nearest cent.  
 4/ Total area, less 229 acres not needing drainage and non-participation, and 51 acres to remain in woodland.



Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - 2  
 State - Kentucky

SUMMARY - TABLE II B  
 (Zone for Drainage and Flood Control Calculations)  
 COMPUTATION OF AGRICULTURAL PRODUCTION  
EXISTING CONDITIONS

Soil unit	Land use and crop distribution	Acres	Production		
			Unit	Per acre	Total
All	Open land	1,804			
	Crops:				
	Corn	446	bu.	36	16,145
	Soybeans	276	bu.	13	3,501
	Hay	76	ton	1.6	122
	<u>Idle</u>				
	Pasture	241	-	-	-
	Other 1/	668	lb.bf.	146	97,782
	Forest land	97	-	-	-
		<u>2,585</u>			
	Total	4,389			

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Calculated from columns 3 and 6, rounded to nearest unit.

Basin - West Ky. Tributaries

Project - Mayfield Creek

Reach - 2

State - Kentucky

SUMMARY - TABLE III B

(Zone for Drainage and Flood Control Calculations)

COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS

AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Production		Value of production		Cost of production		Net return	
			Unit	Per acre	Total	Per unit	Total	Per acre		Total
			2/		Dollars		Dollars			
All	Open land	1,804								
	Crops:									
	Corn	570	bu.	40	22,820	1.45	33,089	34.06	19,412	13,677
	Soybeans	176	bu.	20	3,487	2.30	8,021	25.81	4,543	3,478
	Hay	105	ton	1.7	174.3	20.00	3,486	30.69	3,222	264
	Idle	207	-	-	-	-	-	-	-	-
	Pasture	649	lb.bf.	175	113,504	0.2004	22,746	17.66	11,460	11,286
	Other l/	97	-	-	-	-	-	-	-	-
	Forest land	127	-	-	-	12.33	1,566	6.50	826	740
	Total	1,931	4/				68,908		39,463	29,445

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Calculated from columns 3 and 6, and rounded to nearest unit.

3/ Calculated from columns 3 and 10, and rounded to nearest cent.

4/ Total area, less 2,458 acres to remain in woods because of non-participation in land conversions.

Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - 2  
 State - Kentucky

SUMMARY - TABLE IV B  
 (Zone for Drainage and Flood Control Calculations)  
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,  
 AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Production		Value of production		Cost of production		Net return	
			Unit	Per acre	2/Total	Per unit	Total	Per acre		Total
All	Open land	1,931								
	Crops:									
	Corn	804	bu.	55	44,336	1.45	64,287	45.34	36,454	27,833
	Soybeans	202	bu.	26	5,167	2.30	11,884	30.51	6,163	5,721
	Hay	136	ton	2.2	302.4	20.00	6,048	39.86	5,421	627
	Idle	7	-	-	-	-	-	-	-	-
	Pasture	685	lb.bf.	240	164,125	0.2004	32,891	24.34	16,674	16,217
	Other 1/	97	-	-	-	-	-	-	-	-
	Forest land	0	-	-	-	-	-	-	-	-
	Total	1,931	4/					115,110		64,712

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Calculated from columns 3 and 6, rounded to nearest unit.

3/ Calculated from columns 3 and 10, rounded to nearest cent.

4/ Total area Zone B, Reach 2, less 2,458 acres to remain in woods because of non-participation in land conversions.



Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - 2  
 State - Kentucky

TABLE V  
 REACH 2 SUMMARY BY SOIL MAPPING UNITS

Soil unit	Acres	Future without project (value of production in dollars)		Future with project (value of production in dollars)		Difference in net value	
		Gross	Cost	Net	Gross		Cost
ZONE A - (Not subject to flooding)							
7	462	21,429	11,966	9,463	34,922	19,064	15,858
8	139	3,473	2,281	1,192	8,042	4,547	3,495
Subtotal 2/	601	24,902	14,247	10,655	42,964	23,611	19,353
ZONE B (Subject to flooding)							
7	942	50,011	28,786	21,225	71,979	41,022	30,957
8	885	18,897	10,677	8,220	43,131	23,690	19,441
13	7	-	-	-	-	-	-
Subtotal 3/	1,834	68,908	39,463	29,445	115,110	64,712	50,398
Total 1/	2,435	93,810	53,710	40,100	158,074	88,323	69,751
Total	1/	2,435	93,810	53,710	158,074	88,323	69,751
							29,651

1/ Total area, Reach 2, less acreage in notes 2 and 3 below.  
 2/ Total area of Zone A reduced by 316 acres not anticipated to receive drainage benefits from project.  
 3/ Total area of Zone B reduced by 97 acres "other land" and 2,458 acres estimated to remain as woodland.

Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - 2  
 State - Kentucky

TABLE VI  
 LAND CONVERSIONS WITH PROJECT

Type of Conversion <u>1/</u>	Total Amount	Cost of clearing	Cost of smoothing	Cost of Pasture establishment	Total cost
	<u>Acres</u>	<u>Dollars</u>	<u>Dollars</u> <u>4/</u>	<u>Dollars</u>	<u>Dollars</u>
Per Acre					
W to GC	-	56	-	-	56
W to P	-	56	-	40	96
P to GC	-	-	-	-	0
X to P	-	-	-	40	40
X to GC	-	-	-	-	0
GC to P	-	-	-	40	40
Reach					
W to GC	197	11,032	-	-	11,032
W to P	0	-	-	-	0
P to GC	129	-	-	-	0
X to P	179	-	-	7,160	7,160
X to GC	34	-	-	-	0
GC to P	0	-	-	-	0
Total Reach 2					18,192
Annual amortized value <u>2/</u>					997
Annual maintenance <u>3/</u>				1,432	1,432
Total annual cost of conversions					2,429

1/ W—woodland; GC—general crops; P—pasture; X—idle.

2/ Amortized over 50-year period at 5 percent.

3/ Pasture maintenance at \$8.00 per acre per year.

4/ Included in clearing costs.

Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - 2  
 State - Kentucky

TABLE VII - SUMMARY  
 ANALYSIS OF FARM DRAINAGE SYSTEMS COSTS

Zone/ Soil mapping unit and land use	Area Acres	Total Cost Installation <u>1/</u> Dollars	Annual equivalent cost <u>2/</u> Dollars	Annual maintenance cost Dollars	Total annual Cost Dollars
7- Cropland	853	20,270	2,625	2,339	4,964
7- Pasture	322	6,396	828	246	1,074
8 - Cropland	396	9,411	1,218	1,086	2,304
8 - Pasture	408	8,103	1,049	312	1,361
Total	1,979	44,180	5,720	3,983	9,703

1/ Includes engineering and contingency.

2/ Amortized at 5 percent over 10 years. (0.1295)

Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - 2  
 State - Kentucky

TABLE IX  
 SUMMARY OF ANNUAL NET PRODUCTION RETURNS  
 AND ASSOCIATED COSTS

Item	Total	Discounted Amount
	<u>Dollars</u>	<u>Dollars</u>
1. Net return with project	69,751	
2. Net return without project	40,100	
3. Gross benefit to project	29,651	23,506 <u>1/</u>
4. Farm drainage cost		
a. Installation cost	5,720	
b. Maintenance cost	3,980	
c. Total	9,703	7,692 <u>1/</u>
5. Conversion cost		
a. Installation cost	997	
b. Maintenance cost	1,432	
c. Total	2,429	1,926 <u>1/</u>

1/ Discounted for a 10 year lag at 5 % interest.



Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - 3  
 State - Kentucky

SUMMARY - TABLE II A  
 (Zone for Drainage Calculations Only)  
 COMPUTATION OF AGRICULTURAL PRODUCTION  
 EXISTING CONDITIONS

Soil unit	Land use and crop distribution	Acres	Production	
			Unit	Per acre 2/ Total
All	Open land	601		
	Crops:			
	Corn	388	bu.	31
	Soybeans	31	bu.	16
	Hay	22	ton	1.2
	Idle	55	-	-
	Pasture	75		
	Other 1/	30		
	Forest land	33	lb.bf.	179
	Total	634 3/		11,940 490 27 - 12,759

- 1/ Farmsteads, farm roads, waste and non-agricultural.  
 2/ Calculated from columns 3 and 6, rounded to nearest unit.  
 3/ Total area, less 48 acres not needing drainage.



Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - 3  
 State - Kentucky

SUMMARY - TABLE III A

(Zone for Drainage Calculations Only)

COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION PRODUCTION COSTS,  
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Production		Value of production		Cost of production		Net return Dollars	
			Unit	Per acre	2/ Total Dollars	Per unit Dollars	Total Dollars	Per acre Dollars		Total Dollars
ALL	Open land	506								
	Crops:									
	Corn	335	bu.	38	12,735	1.45	18,466	32.30	10,821	7,645
	Soybeans	22	bu.	24	517	2.30	1,190	28.55	628	562
	Hay	17	ton	1.4	23.4	20.00	468	26.06	443	25
	Idle	34	-	-	-	-	-	-	-	-
	Pasture	68	lb.bf.	214	14,552	0.2004	2,916	22.21	1,510	1,406
	Other 1/	30	-	-	-	-	-	-	-	-
	Forest land	14	-	-	-	13.37	187	7.19	101	86
	Total	520 4/						23,227	13,503	9,724

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Calculated from columns 3 and 6, rounded to nearest unit.

3/ Calculated from columns 3 and 10, rounded to nearest cent.

4/ Total area, less 143 acres not needing drainage or non-participation, and 19 acres estimated to remain in woods.

Basin- West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - 3  
 State - Kentucky

SUMMARY - TABLE IV A  
 (Zone for Drainage Calculations Only)  
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,  
 AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Production		Value of production		Cost of production		Net return
			Unit	Per acre	2/ Total	Per unit	Total	Per acre	Total
						Dollars	Dollars	Dollars	Dollars
All	Open land	520						<u>37</u>	
	Crops:								
	Corn	371	bu.	63	23,255	1.45	33,720	51.11	18,962
	Soybeans	30	bu.	29	875	2.30	2,013	33.40	1,002
	Hay	19	ton	2.3	44.5	20.00	890	41.79	794
	Idle	0	-	-	-	-	-	-	-
	Pasture	70	lb.bf.	283	19,840	0.2004	3,976	27.99	1,959
	Other 1/	30	-	-	-	-	-	-	-
	Forest land	0	-	-	-	-	-	-	-
	Total	520					40,599		22,717
									17,882

- 1/ Farmsteads, farm roads, waste and non-agricultural.  
 2/ Calculated from columns 3 and 6, rounded to nearest unit.  
 3/ Calculated from columns 3 and 10, rounded to nearest cent.  
 4/ Total area, less 143 acres not needing drainage or non-participation, and 19 acres estimated to remain in woods.

Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - 3  
 State - Kentucky

SUMMARY - TABLE II B  
 (Zone for Drainage and Flood Control Calculations)  
 COMPUTATION OF AGRICULTURAL PRODUCTION  
EXISTING CONDITIONS

Soil unit	Land use and crop distribution	Acres	Unit	Production	
				Per Acre	Total
All	Open land	2,955			
	Crops:				
	Corn	1,537	bu.	32	49,672
	Soybeans	18	bu.	10	187
	Hay	146	ton	1.5	212
	Idle	271			
	Pasture	852	lb.bf.	162	138,330
	Other 1/	131			
	Forest land	3,094			
	Total	6,049			

- 1/ Farmsteads, farm roads, waste and non-agricultural.  
 2/ Calculated from columns 3 and 6, rounded to nearest unit.



Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - 3  
 State - Kentucky

SUMMARY - TABLE III B  
 (Zone for Drainage and Flood Control Calculations)  
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,  
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Production		Value of production		Cost of production		Net return
			Unit	Per acre	2/ Total	Per unit	Total	Per acre	Total
						Dollars	Dollars	Dollars	Dollars
All	Open land	2,955						<u>3/</u>	
	Crops:								
	Corn	1,529	bu.	39	59,707	1.45	86,575	33.42	51,103
	Soybeans	17	bu.	16	256	2.30	589	22.59	384
	Hay	145	ton	1.7	242.2	20.00	4,844	30.86	4,474
	Idle	255	-	-	-	-	-	-	-
	Pasture	878	lb.bf.	195	171,463	0.2004	34,361	19.92	17,496
	Other 1/	131	-	-	-	-	-	-	-
	Forest land	724	-	-	-	13.37	9,680	7.19	5,206
	Total	3,679 4/					136,049		78,663
									57,386

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Calculated from columns 3 and 6, rounded to nearest unit.

3/ Calculated from columns 3 and 10, rounded to nearest cent.

4/ Total area, less 2370 acres to remain in woods because of non-participation in land conversions.

Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - 3  
 State - Kentucky

SUMMARY - TABLE IV B

(Zone for Drainage and Flood Control Calculations)  
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,  
 AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Production		Value of production		Cost of production		Net return
			Unit	Per acre	2/ Total	Per unit	Total	Per acre	Total
						Dollars	Dollars	Dollars	Dollars
All	Open land	3,679							
	Crops:								
	Corn	2,084	bu.	55	115,288	1.45	167,168	45.49	94,797
	Soybeans	364	bu.	28	10,296	2.30	23,681	32.69	11,899
	Hay	280	ton	2.2	622.2	20.00	12,444	39.84	11,156
	Idle	0							
	Pasture	820	lb.bf.	251	205,985	0.2004	41,280	25.21	20,670
	Other 1/	131	-	-	-	-	-	-	-
	Forest land	0							
	Total	3,679	4/				244,573		138,522
									106,051

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Calculated from columns 3 and 6, rounded to nearest unit.

3/ Calculated from columns 3 and 10, rounded to nearest cent.

4/ Total area of Zone B, Reach 3, less 2370 acres to remain in woods because of non-participation in land conversions.

Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - 3  
 State - Kentucky

TABLE V  
 REACH 3 SUMMARY BY SOIL MAPPING UNITS

Soil unit	Acres	Future without project		Future with project		Difference in Net Value
		(Value of production in dollars)		(Value of production in dollars)		
		Gross	Net	Gross	Net	
<u>ZONE A (Not subject to flooding)</u>						
7	431	21,879	12,434	9,445	37,014	20,615
8	59	1,348	1,069	279	3,585	2,102
Subtotal	2/ 490	23,227	13,503	9,724	40,599	22,717
<u>ZONE B (Subject to flooding)</u>						
7	2,418	113,687	64,986	48,701	187,534	105,950
8	1,095	21,894	13,425	8,469	56,035	32,078
14	35	468	252	216	1,004	494
Subtotal	3,548 3/	136,049	78,663	57,386	244,573	138,522
Total	4,038	159,276	92,166	67,110	285,172	161,239
						123,933
						56,823

1/ Total area, Reach 3, less acreage in notes 2 and 3 below.

2/ Total area of Zone A reduced by 192 acres not anticipated to receive drainage benefits from project.

3/ Total area of Zones B reduced by 131 acres "other" land and 2370 acres estimated to remain as woodland.



Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - 3  
 State - Kentucky

TABLE VI  
 LAND CONVERSIONS WITH PROJECT

Type of Conversion <u>1/</u>	Total amount	Cost of clearing	Cost of smoothing	Cost of Pasture establishment	Total Cost
	<u>Acres</u>	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>
<u>4/</u>					
Per Acre					
W to GC	-	56	-	-	56
W to P	-	56	-	40	96
P to GC	-	-	-	-	0
X to P	-	-	-	40	40
X to GC	-	-	-	-	0
GC to P	-	-	-	40	40
Reach					
W to GC	610	34,160	-	-	34,160
W to P	131	7,336	-	5,240	12,576
P to GC	408	-	-	-	0
X to P	223	-	-	8,920	8,920
X to GC	66	-	-	-	0
GC to P	0	-	-	-	0
Total Reach 3					55,656
Annual amortized value <u>2/</u>					3,049
Annual maintenance <u>3/</u>				2,832	2,832
Total annual cost of conversions					5,881

1/ W--woodland; GC--general crops; P--pasture; X--idle.

2/ Amortized over 50-year period at 5 percent.

3/ Pasture maintenance at \$8.00 per acre per year.

4/ Included in clearing costs.

Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - 3  
 State - Kentucky

TABLE VII- SUMMARY  
 ANALYSIS OF FARM DRAINAGE SYSTEMS COSTS

Zone/ Soil mapping unit and land use	Area Acres	Total Cost Installation 1/ Dollars	Annual equivalent Cost 2/ Dollars	Annual maintenance Cost Dollars	Total annual cost Dollars
7- Cropland	1,881	44,699	5,788	5,158	10,946
7- Pasture	402	7,985	1,034	307	1,341
8- Cropland	623	14,805	1,917	1,708	3,625
8- Pasture	267	5,303	687	204	891
14- Pasture	35	695	90	27	117
Total	3,208	73,487	9,516	7,404	16,920

- 1/ Includes engineering and contingency.  
 2/ Amortized at 5 percent over 10 years. (0.1295)

Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - 3  
 State - Kentucky

TABLE IX  
 SUMMARY OF ANNUAL NET PRODUCTION RETURNS  
 AND ASSOCIATED COSTS

Item	Total	Discounted amount
	<u>Dollars</u>	<u>Dollars</u>
1. Net return with project	123,933	
2. Net return without project	67,110	
3. Gross benefit to project	56,823	45,046 <u>1/</u>
4. Farm drainage cost		
a. Installation cost	9,516	
b. Maintenance cost	7,404	
c. Total	16,920	13,413 <u>1/</u>
5. Conversion cost		
a. Installation cost	3,049	
b. Maintenance cost	2,832	
c. Total	5,881	4,662 <u>1/</u>

1/ Discounted for a 10 year lag at 5% interest.



Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - 4  
 State - Kentucky

SUMMARY - TABLE II A  
 (Zone for Drainage Calculations Only)  
 COMPUTATION OF AGRICULTURAL PRODUCTION  
EXISTING CONDITIONS

Soil unit	Land use and crop distribution	Acres	Unit	Production	
				Per acre	Total
All	Open land	974			
	Crops:				
	Corn	516	bu.	25	13,050
	Soybeans	0	-	-	-
	Hay	118	ton	1.4	167
	Idle	27	-	-	-
	Pasture	265	lb.bf.	138	36,563
	Other 1/	48			
	Forest land	83			
	Total	1,057 3/			

- 1/ Farmsteads, farm roads, waste and non-agricultural.  
 2/ Calculated from columns 3 and 6, rounded to nearest unit.  
 3/ Total area, less 106 acres not needing drainage.

Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - 4  
 State - Kentucky

SUMMARY - TABLE III A  
 (Zone for Drainage Calculations Only)  
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,  
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

Soil Unit	Land use and crop distribution	Acres	Unit	Production		Value of production		Cost of production		Net return
				Per acre	2/ Total	Per unit	Total	Per acre	Total	
				Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	
ALL	Open land	787						<u>3/</u>		
	Crops:									
	Corn	342	bu.	32	10,822	1.45	15,692	28.33	9,689	6,003
	Soybeans	0	-	-	-	-	-	-	-	-
	Hay	85	ton	1.7	143.4	20.00	2,868	31.11	2,645	223
	Idle	20	-	-	-	-	-	-	-	-
	Pasture	292	lb.bf.	175	51,199	0.2004	10,260	17.79	5,196	5,064
	Other 1/	48	-	-	-	-	-	-	-	-
	Forest land	25	-	-	-	11.10	278	5.94	149	129
	Total	812 <u>4/</u>						29,098	17,679	11,419

- 1/ Farmsteads, farm roads, waste and non-agricultural.  
 2/ Calculated from columns 3 and 6, rounded to nearest unit.  
 3/ Calculated from columns 3 and 10, rounded to nearest cent.  
 4/ Total area less 293 acres not needing drainage or non-participation and 58 acres estimated to remain in woodland.

Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - 4  
 State - Kentucky

SUMMARY - TABLE IV A  
 (Zone for Drainage Calculations Only)  
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,  
 AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Production		Value		Cost		Net return	
			Unit	Per acre	2/ Total	of production Per unit	Total	of production Per acre		Total
All	Open land	812								
	Crops:									
	Corn	495	bu.	57	28,035	1.45	40,651	46.44	22,991	17,660
	Soybeans	13	bu.	25	325	2.30	748	29.69	386	362
	Hay	93	ton	2.4	221	20.00	4,420	42.35	3,939	481
	Idle	0								
	Pasture	163	lb.bf.	267	43,558	0.2004	8,730	26.64	4,342	4,388
Other 1/	48									
Forest land	0									
	Total	812 4/					54,549		31,658	22,891

- 1/ Farmsteads, farm roads, waste and non-agricultural.  
 2/ Calculated from columns 3 and 6, rounded to nearest unit.  
 3/ Calculated from columns 3 and 10, rounded to nearest cent.  
 4/ Total area, less 293 acres not needing drainage or non-participation, and 58 acres estimated to remain in woods.



Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - 4  
 State - Kentucky

SUMMARY - TABLE II B  
 (Zone for Drainage and Flood Control Calculations)  
 COMPUTATION OF AGRICULTURAL PRODUCTION  
EXISTING CONDITIONS

Soil unit	Land use and crop distribution	Acres	Production	
			Unit	Per acre <sup>2/</sup> Total
All	Open land	3,349		
	Crops:			
	Corn	1,417	bu.	29 41,003
	Soybeans	54	bu.	11 572
	Hay	367	ton	1.2 469
	<u>Idle</u>	297	-	-
	Pasture	1,014	lb.bf.	151 153,582
	Other 1/	200	-	-
	Forest land	<u>2,646</u>		
	Total	5,995		

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Calculated from columns 3 and 6, rounded to nearest unit.

Basin - West Ky. Tributaries  
Project - Mayfield Creek  
Reach - 4  
State - Kentucky

SUMMARY - TABLE III B  
(Zone for Drainage and Flood Control Calculations)

COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,  
AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Production		Value		Cost		Net return	
			Unit	Per acre 2/ Total	of production Per unit	Total	of production Per acre	Total		
<hr/>										
All	Open land	3,349								
	Crops:									
	Corn	1,297	bu.	36	46,738	1.45	67,770	31.44	40,776	26,994
	Soybeans	76	bu.	19	1,415	2.30	3,255	24.89	1,892	1,363
	Hay	495	ton	1.3	643.5	20.00	12,870	24.82	12,287	583
	Idle	265	-	-	-	-	-	-	-	-
	Pasture	1,016	lb.bf.	185	187,936	0.2004	37,662	18.78	19,080	18,582
	Other 1/	200	-	-	-	-	-	-	-	-
	Forest land	548	-	-	-	-	6,083	5.94	3,265	2,818
	Total	3,897 4/					127,640		77,300	50,340
<hr/>										

- 1/ Farmsteads, farm roads, waste and non-agricultural.  
2/ Calculated from columns 3 and 6, rounded to nearest unit.  
3/ Calculated from columns 3 and 10, rounded to nearest cent.  
4/ Total area, less 2098 acres to remain in woods because of non-participation in land conversions.

Basin - West Ky. Tributaries  
 Project- Mayfield Creek  
 Reach- 4  
 State - Kentucky

SUMMARY - TABLE IV B

(Zone for Drainage and Flood Control Calculations)

COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,  
 AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Production		Value of production		Cost of production		Net return
			Unit	Per Acre	2/ Total	Per unit	Total	Per acre	Total
						Dollars	Dollars	Dollars	Dollars
All	Open land	3,897							
	Crops:								
	Corn	2,057	bu.	51	104,533	1.45	151,573	41.89	86,165
	Soybeans	343	bu.	26	9,060	2.30	20,838	31.19	10,699
	Hay	592	ton	2.0	1,164.6	20.00	23,292	35.69	21,126
	Idle	0							
	Pasture	705	lb.bf.	260	183,485	0.20	36,771	26.01	18,340
	Other 1/	200							
	Forest land	0							
	Total	3,897	4/				232,474		136,330
									96,144

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Calculated from columns 3 and 6, rounded to nearest unit.

3/ Calculated from columns 3 and 10, rounded to nearest cent.

4/ Total area, less 2098 acres to remain in woods because of non-participation in land conversions.



Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - 4  
 State - Kentucky

TABLE V  
 SUMMARY BY SOIL MAPPING UNIT  
 REACH 4

Soil unit	Acres	Future without project (value of production in dollars)		Future with project (value of production in dollars)		Difference in	
		Gross	Cost	Gross	Cost	Net	net value
		ZONE A (Not subject to flooding)		ZONE B (Subject to flooding)			
7	436	21,143	12,718	8,425	35,115	20,541	14,574
8	328	7,955	4,961	2,994	19,434	11,117	8,317
Subtotal	2/ 764	29,098	17,679	11,419	54,549	31,658	22,891
7	1,888	90,743	52,687	38,056	142,585	80,407	62,178
8	1,796	36,753	24,536	12,217	89,516	55,740	33,776
14	13	144	77	67	373	183	190
Subtotal	3/ 3,697	127,640	77,300	50,340	232,474	136,330	96,144
Total	1/ 4,461	156,738	94,979	61,759	287,023	167,988	119,035
							57,276

1/ Total area, Reach 4, less acreage in notes 2 and 3 below.

2/ Total area of Zone A reduced by 399 acres not anticipated to receive drainage benefits from project.

3/ Total area of Zone B reduced by 200 acres "other" land and 2098 acres estimated to remain in woodland.

Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - 4  
 State - Kentucky

TABLE VI  
 LAND CONVERSIONS WITH PROJECT

Type of Conversion <u>1/</u>	Total Amount	Cost of clearing	Cost of smoothing	Cost of Pasture establishment	Total cost
	<u>Acres</u>	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>
<u>4/</u>					
Per Acre					
W to GC	-	56	-	-	56
W to P	-	56	-	40	96
P to GC	-	-	-	-	0
X to P	-	-	-	40	40
X to GC	-	-	-	-	0
GC to P	-	-	-	40	40
Reach					
W to GC	352	19,712	-	-	19,712
W to P	227	12,712	-	9,080	21,792
P to GC	741	-	-	-	0
X to P	97	-	-	3,880	3,880
X to GC	180	-	-	-	0
GC to P	0	-	-	-	0
Total Reach 4					45,384
Annual amortized value <u>2/</u>					2,486
Annual maintenance <u>3/</u>				2,592	2,592
Total annual cost of conversions					5,078

1/ W--woodland; GC--general crops; P--pasture; X--idle.

2/ Amortized over 50-year period at 5 percent.

3/ Pasture maintenance at \$8.00 per acre per year.

4/ Included in clearing costs.

Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - 4  
 State - Kentucky

TABLE VII - SUMMARY  
 ANALYSIS OF FARM DRAINAGE SYSTEMS COSTS

Zone/ Soil mapping unit and land use	Area	Total cost	Annual equivalent cost 2/	Annual maintenance cost	Total annual cost
		Installation 1/	Dollars	Dollars	Dollars
	Acres	Dollars	Dollars	Dollars	Dollars
7- Cropland	1,428	33,934	4,395	3,916	8,311
7- Pasture	441	8,760	1,135	337	1,472
8- Cropland	1,439	34,196	4,429	3,945	8,374
8 - Pasture	246	4,887	633	188	821
14- Pasture	13	258	33	10	43
Total	3,567	82,035	10,625	8,396	19,021

1/ Includes engineering and contingency.

2/ Amortized at 5 percent over 10 years. (0.1295)



Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - 4  
 State - Kentucky

TABLE IX  
 SUMMARY OF ANNUAL NET PRODUCTION RETURNS  
 AND ASSOCIATED COSTS

Item	Total	Discounted amount
	<u>Dollars</u>	<u>Dollars</u>
1. Net return with project	119,035	
2. Net return without project	61,959	
3. Gross benefit to project	57,276	45,406 <u>1/</u>
4. Farm drainage cost		
a. Installation cost	10,625	
b. Maintenance cost	8,396	
c. Total	19,021	15,079 <u>1/</u>
5. Conversion cost		
a. Installation cost	2,486	
b. Maintenance cost	2,592	
c. Total	5,078	4,026 <u>1/</u>

1/ Discounted for a 10-year lag at 5% interest.

Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - 5  
 State - Kentucky

SUMMARY - TABLE II A  
 (Zone for Drainage Calculations Only)  
 COMPUTATION OF AGRICULTURAL PRODUCTION  
 EXISTING CONDITIONS

Soil unit	Land use and crop distribution	Acres	Production	
			Unit	Per acre 2/ Total
All	Open land	655		
	Crops:			
	Corn	397	bu.	25 9,828
	Soybeans	0	-	-
	Hay	43	ton	1.3 57
	Idle	23	-	-
	Pasture	151	lb.bf.	137 20,621
	Other 1/	41		
	Forest land	132		
	Total	787 3/		

- 1/ Farmsteads, farm roads, waste and non-agricultural.  
 2/ Calculated from columns 3 and 6, rounded to nearest unit.  
 3/ Total area, less 70 acres not needing drainage.

Basin - West Ky. Tributaries  
 Project- Mayfield Creek  
 Reach - 5  
 State - Kentucky

SUMMARY - TABLE III A

(Zone for Drainage Calculations Only)

COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,  
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Production		Value of production		Cost of production		Net return	
			Unit	Per acre 2/ Total	Per unit	Total	Per acre	Total		
			Dollars		Dollars		Dollars		Dollars	
							<u>37</u>			
All	Open land	537								
	Crops:									
	Corn	252	bu.	30	7,657	1.45	11,102	27.55	6,942	4,160
	Soybeans	0	-	-	-	-	-	-	-	-
	Hay	59	ton	1.6	97.4	20.00	1,948	30.53	1,801	147
	Idle	15	-	-	-	-	-	-	-	-
	Pasture	170	lb.bf.	172	29,280	0.2004	5,868	17.44	2,965	2,903
	Other 1/	41								
	Forest land	48				12.06	579	5.67	272	307
	Total	585	4/				19,497		11,980	7,517

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Calculated from columns 3 and 6, rounded to nearest unit.

3/ Calculated from columns 3 and 10, rounded to nearest cent.

4/ Total area, less 188 acres not needing drainage or non-participation, and 84 acres estimated to remain in woodland.



Basin - West Kentucky Tributaries  
 Project - Mayfield Creek  
 Reach - 5  
 State - Kentucky

SUMMARY - TABLE IV A  
 (Zone for Drainage Calculations Only)  
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,  
 AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Production		Value of production		Cost of production		Net return
			Unit	Per acre	2/ Total	Per unit	Total	Per acre	Total
						Dollars	Dollars	Dollars	Dollars
All	Open land	585							
	Crops:								
	Corn	372	bu.	56	20,920	1.45	30,334	46.14	17,164
	Soybeans	0	-	-	-	-	-	-	-
	Hay	71	ton	2.4	170.5	20.00	3,410	42.76	3,036
	Idle	0							
	Pasture	101							
	Other 1/	41	lb.bf.	264	26,654	0.2004	5,341	26.36	2,662
	Forest land	0							
	Total	585					39,085		22,862
									16,223

3/

1/ Farmsteads, farm roads, waste and non-agricultural.  
 2/ Calculated from columns 3 and 6, rounded to nearest unit.  
 3/ Calculated from columns 3 and 10, rounded to nearest cent.  
 4/ Total area, less 188 acres not needing drainage or non-participation and 84 acres estimated to remain in woodland.

Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - 5  
 State - Kentucky

SUMMARY - TABLE II B  
 (Zone for Drainage and Flood Control Calculations)  
 COMPUTATION OF AGRICULTURAL PRODUCTION  
EXISTING CONDITIONS

Soil unit	Land use and crop distribution	Acres	Production		
			Unit	Per acre	Total
All	Open land	816			
	Crops:				
	Corn	482	bu.	29	14,200
	Soybeans	30	bu.	13	409
	Hay	58	ton	1.3	76
	<u>Idle</u>				
	Pasture	69	-	-	-
	Other 1/	159	lb.bf.	160	25,371
	Forest land	18	-	-	-
		<u>248</u>			
	Total	1,064			

- 1/ Farmsteads, farm roads, waste and non-agricultural.  
 2/ Calculated from columns 3 and 6, rounded to nearest unit.

Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - 5  
 State - Kentucky

SUMMARY- TABLE III B  
 (Zone for Drainage and Flood Control Calculations)  
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,  
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Production		Value of production		Cost of production		Net return	
			Unit	Per acre	2/ Total	Per unit	Total	Per acre		Total
						Dollars	Dollars	Dollars		Dollars
All	Open land	828								
	Crops:									
	Corn	459	bu.	36	16,747	1.45	24,283	31.72	14,560	9,723
	Soybeans	31	bu.	20	633	2.30	1,456	26.29	815	641
	Hay	64	ton	1.5	94.4	20.00	1,888	27.66	1,770	118
	Idle	52	-	-	-	-	-	-	-	-
	Pasture	204	lb.bf.	186	37,946	0.2004	7,604	18.87	3,849	3,755
	Other 1/	18	-	-	-	-	-	-	-	-
	Forest land	79								

- 1/ Farmsteads, farm roads, waste and non-agricultural.
- 2/ Calculated from columns 3 and 6, rounded to nearest unit.
- 3/ Calculated from columns 3 and 10, rounded to nearest cent.
- 4/ Total area, less 157 acres to remain in woods because of non-participation in land conversions.



Basin - West Ky. Tributaries

Project - Mayfield Creek

Reach - 5

State - Kentucky

SUMMARY - TABLE IV B

(Zone for Drainage and Flood Control Calculations)  
COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,  
AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Production		Value of production		Cost of production		Net return	
			Unit	Per acre	2/ Total	Per unit	Total	Per acre		Total
			Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	
All	Open land	907						3/		
	Crops:									
	Corn	533	bu.	54	28,743	1.45	41,677	44.37	23,648	
	Soybeans	112	bu.	26	2,961	2.30	6,810	31.20	3,494	
	Hay	61	ton	2.1	130.8	20.00	2,616	38.57	2,353	
	Idle	1	-	-	-	-	-	-	-	
	Pasture	182	lb.bf.	242	41,150	0.2004	8,848	25.02	4,553	
	Other 1/	18	-	-	-	-	-	-	-	
	Forest land	0	-	-	-	-	-	-	-	
	Total	907	4/				59,951		34,048	
									25,903	

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Calculated from columns 3 and 6, rounded to nearest unit.

3/ Calculated from columns 3 and 10, rounded to nearest cent.

4/ Total area, less 157 acres to remain in woods because of non-participation in land conversions.

Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - 5  
 State - Kentucky

TABLE V  
 REACH 5 SUMMARY BY SOIL MAPPING UNITS

Soil unit	Acres	Future without project (value of production in dollars)		Future with project (value of production in dollars)			Difference in net value	
		Gross	Cost	Net	Gross	Cost		
								Net
ZONE A -(Not subject to flooding)								
7	305	13,784	8,294	5,490	24,783	14,685	10,098	4,608
8	239	5,713	3,686	2,027	14,302	8,177	6,125	4,098
Subtotal 2/	544	19,497	11,980	7,517	39,085	22,862	16,223	8,706
ZONE B (Subject to flooding)								
7	541	28,490	16,448	12,042	42,418	23,852	18,566	6,524
8	339	7,597	4,948	2,649	17,533	10,083	7,450	4,801
14	9	96	45	51	229	113	116	65
Subtotal 3/	889	36,183	21,441	14,742	60,180	34,048	26,132	11,390
Total	1,433 1/	55,680	33,421	22,259	99,265	56,910	42,355	20,096

1/ Total area, Reach 5, less acreage in notes 2 and 3 below.  
 2/ Total area of Zone A reduced by 313 acres not anticipated to receive drainage benefits from project.  
 3/ Total area of Zone B reduced by 18 acres "other" land, and 157 acres estimated to remain as woodland.

Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - 5  
 State - Kentucky

TABLE VI  
 LAND CONVERSIONS WITH PROJECT

Type of conversion <u>1/</u>	Total Amount	Cost of clearing	Cost of smoothing	Cost of Pasture establishment	Total cost
	<u>Acres</u>	<u>Dollars</u>	<u>Dollars</u> <u>4/</u>	<u>Dollars</u>	<u>Dollars</u>
<u>Per Acre</u>					
W to GC	-	56	-	-	56
W to P	-	56	-	40	96
P to GC	-	-	-	-	0
X to P	-	-	-	40	40
X to GC	-	-	-	-	0
GC to P	-	-	-	40	40
<u>Reach</u>					
W to GC	81	4,536	-	-	4,536
W to P	55	3,080	-	2,200	5,280
P to GC	173	-	-	-	0
X to P	35	-	-	1,400	1,400
X to GC	31	-	-	-	0
GC to P	0	-	-	-	0
Total Reach 5					11,216
Annual amortized value <u>2/</u>					614
Annual maintenance <u>3/</u>				720	720
Total annual cost of conversions					1,334

1/ W--woodland; GC--general crops; P--pasture; X--idle.

2/ Amortized over 50-year period at 5 percent.

3/ Pasture maintenance at \$8.00 per acre per year.

4/ Included in clearing costs.



Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - 5  
 State - Kentucky

TABLE VII - SUMMARY  
 ANALYSIS OF FARM DRAINAGE SYSTEMS COSTS

Zone/ Soil mapping unit and land use	Area Acres	Total cost Installation 1/ Dollars	Annual equivalent cost 2/ Dollars	Annual maintenance cost Dollars	Total annual cost Dollars
7 - Cropland	601	14,281	1,849	1,648	3,497
7 - Pasture	115	2,285	296	88	384
8 - Cropland	376	8,936	1,157	1,031	2,188
8 - Pasture	118	2,343	303	90	393
14 - Pasture	9	179	23	7	30
Total	1,219	28,024	3,628	2,864	6,492

1/ Includes engineering and contingency.

2/ Amortized at 5 percent over 10 years. (0.1295)

Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - 5  
 State - Kentucky

TABLE IX  
 SUMMARY OF ANNUAL NET PRODUCTION RETURNS  
 AND ASSOCIATED COSTS

Item	Total	Discounted amount
	<u>Dollars</u>	<u>Dollars</u>
1. Net return with project	42,355	
2. Net return without project	22,259	
3. Gross benefit to project	20,096	15,931 <u>1/</u>
4. Farm drainage cost		
a. Installation cost	3,628	
b. Maintenance cost	2,864	
c. Total	6,492	5,147 <u>1/</u>
5. Conversion cost		
a. Installation cost	614	
b. Maintenance cost	720	
c. Total	1,337	1,060 <u>1/</u>

1/ Discounted for a 10-year lag at 5 percent interest.

Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - West Fork  
 State - Kentucky

SUMMARY - TABLE II A  
 (Zone for Drainage Calculations Only)  
 COMPUTATION OF AGRICULTURAL PRODUCTION  
EXISTING CONDITIONS

Soil unit	Land use and crop distribution	Acres	Production		
			Unit	Per acre <sup>2/</sup>	Total
All	Open land	761			
	Crops:				
	Corn	344	bu.	32	11,154
	Soybeans	0	-	-	-
	Hay	57	ton	1.5	85.5
	Idle	1	-	-	-
	Pasture	322	lb.bf.	178	57,422
	Other <sup>1/</sup>	37	-	-	-
	Forest land	251			
	Total	1,012 <sup>3/</sup>			

- <sup>1/</sup> Farmsteads, farm roads, waste and non-agricultural.  
<sup>2/</sup> Calculated from columns 3 and 6, rounded to nearest unit.  
<sup>3/</sup> Total area, less 138 acres not needing drainage.



Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - West Fork  
 State - Kentucky

SUMMARY - TABLE III A

(Zone for Drainage Calculations Only)

COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,  
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Production		Value of production		Cost of production		Net return		
			Unit	Per acre	2/	Total	Per unit	Total		Per acre	Total
						Dollars	Dollars	Dollars	Dollars		
All	Open land	497									
	Crops:										
	Corn	230	bu.	40	9,130	1.45	13,238	33.35	7,670		
	Soybeans	62	bu.	26	1,612	2.30	3,708	30.49	1,890		
	Hay	31	ton	1.8	55.8	20.00	1,116	32.96	1,022		
	Idle	1	-	-	-	-	-	-	94		
	Pasture	136	lb.bf.	212	28,891	0.2004	5,790	22.03	2,996		
	Other 1/	37	-	-	-	-	-	-	2,794		
	Forest land	354	-	-	-	-	-	-	7.00		
									4,464		
								2,478			
								1,986			
	Total	851 4/					28,316		16,056		
									12,260		

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Calculated from columns 3 and 6, rounded to nearest unit.

3/ Calculated from columns 3 and 10, rounded to nearest cent.

4/ Total area, less 238 acres not needing drainage and non-participation and 61 acres estimated to remain in woodland.

Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - West Fork  
 State - Kentucky

SUMMARY - TABLE IV A  
 (Zone for Drainage Calculations Only)

COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,  
 AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Production		Value		Cost		Net return	
			Unit	Per acre	of production		of production			
					Total	Total	Per acre	Total		
					Dollars	Dollars	Dollars	Dollars		
						<u>37</u>				
All	Open land	851								
	Crops:									
	Corn	421	bu.	64	27,045	1.45	39,215	52.32	22,025	17,190
	Soybeans	132	bu.	30	3,950	2.30	9,085	34.09	4,500	4,585
	Hay	69	ton	2.5	172.5	20.00	3,450	44.38	3,062	388
	Idle	0								
	Pasture	192	lb.bf.	280	53,796	0.2004	10,781	27.71	5,321	5,460
	Other 1/	37								
	Forest land	0								
	Total		851	4/						34,908

Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - West Fork  
 State - Kentucky

SUMMARY - TABLE II B  
 (Zone for Drainage and Flood Control Calculations)  
 COMPUTATION OF AGRICULTURAL PRODUCTION  
 EXISTING CONDITIONS

Soil unit	Land use and crop distribution	Acres	Unit	Production	
				Per Acre	Total
All	Open land	785			
	Crops:				
	Corn	369	bu.	35	13,054
	Soybeans	107	bu.	20	2,151
	Hay	75	ton	1.6	120
	Idle	66			
	Pasture	122			
	Other 1/	46	lb.bf.	183	22,278
	Forest land	484			
	Total	1,269			

1/ Farmsteads, farm roads, waste and non-agricultural.  
 2/ Calculated from columns 3 and 6, rounded to nearest unit.

Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - West Fork  
 State - Kentucky

SUMMARY - TABLE III B  
 (Zone for Drainage and Flood Control Calculations)  
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,  
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Production		Value of production		Cost of production		Net return
			Unit	Per acre	2/ Total	Per unit	Total	Per acre	Total
						Dollars	Dollars	Dollars	Dollars
All	Open land	770						<u>3/</u>	
	Crops:								
	Corn	439	bu.	44	19,122	1.45	27,727	36.39	15,977
	Soybeans	55	bu.	27	1,458	2.30	3,353	30.98	1,704
	Hay	26	ton	1.9	49.4	20.00	988	34.58	899
	Idle	27							
	Pasture	177	lb.bf.	216	38,267	0.2004	7,668	22.16	3,923
	Other 1/	46	-	-	-				
	Forest land	216				12.61	2,724	7.00	1,512
	Total	986	4/				42,460		24,015
									18,445

- 1/ Farmsteads, farm roads, waste and non-agricultural.  
 2/ Calculated from columns 3 and 6, rounded to nearest unit.  
 3/ Calculated from columns 3 and 10, rounded to nearest cent.  
 4/ Total area, less 283 acres to remain in woods because of non-participation in land conversions.



Basin - West Ky. Tributaries

Project - Mayfield Creek

Reach - West Fork

State - Kentucky

SUMMARY - TABLE IV B

(Zone for Drainage and Flood Control Calculations)

COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,  
AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Unit	Production Per acre	Value of production		Cost of production		Net return
					Per unit	Total	Per acre	Total	
					Dollars	Dollars	Dollars	Dollars	
All	Open land	986							
	Crops:								
	Corn	610	bu.	61	1.45	36,945	49.74	30,340	23,231
	Soybeans	121	bu.	29	2.30	3,557	33.60	4,064	4,117
	Hay	25	ton	2.3	58.2	1,164	41.56	1,039	125
	Idle	0	-	-	-	-	-	-	-
	Pasture	184	lb.bf.	270	0.2004	49,750	26.90	4,949	5,021
	Other 1/	46	-	-	-	-	-	-	-
	Forest land	0	-	-	-	-	-	-	-
	Total	986 4/				72,886		40,392	32,494

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Calculated from columns 3 and 6, rounded to nearest unit.

3/ Calculated from columns 3 and 10, rounded to nearest cent.

4/ Total area, less 283 acres to remain in woods because of non-participation in land conversions.

Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - West Fork  
 State - Kentucky

TABLE V  
 WEST FORK REACH SUMMARY BY SOIL MAPPING UNITS

Soil unit	Acres	Future without project (value of production in dollars)		Future with project (value of production in dollars)		Difference in net value
		Gross	Cost	Net	Cost	
ZONE A - (Not subject to flooding)						
7	765	27,536	15,560	11,976	59,819	26,351
8	49	780	496	284	2,712	1,272
Subtotal	2/ 814	28,316	16,056	12,260	62,531	27,623
ZONE B - (Subject to Flooding)						
7	878	41,293	23,344	17,949	69,660	31,150
8	62	1,167	671	496	3,226	1,344
Subtotal	3/ 940	42,460	24,015	18,445	72,886	32,494
Total	1,754 1/2	70,776	40,071	30,705	135,417	60,117
					75,300	29,412

1/ Total area West Fork Reach, less acreage in notes 2 and 3 below.

2/ Total area of Zone A reduced by 336 acres not anticipated to receive drainage benefits from project.

3/ Total area of Zone B reduced by 46 acres "other" land and 283 acres estimated to remain in woodland.

Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - West Fork  
 State - Kentucky

TABLE VI  
 LAND CONVERSION WITH PROJECT

Type of conversion <u>1/</u>	Total Amount	Cost of clearing	Cost of smoothing	Cost of Pasture establishment	Total cost
	<u>Acres</u>	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>
Per Acre			<u>4/</u>		
W to GC	-	56	-	-	56
W to P	-	56	-	40	96
P to GC	-	-	-	-	0
X to P	-	-	-	40	40
X to GC	-	-	-	-	0
GC to P	-	-	-	40	40
West Fork					
W to GC	462	25,872	-	-	25,872
W to P	169	9,464	-	6,760	16,224
P to GC	119	-	-	-	0
X to P	26	-	-	1,040	1,040
X to GC	2	-	-	-	0
GC to P	0	-	-	-	0
Total West Fork Reach					43,136
Annual amortiz- ed value <u>2/</u>					2,363
Annual mainte- nance <u>3/</u>				1,560	1,560
Total annual cost of con- versions					3,923

1/ W--woodland; GC--general crops; P--pasture; X--idle.

2/ Amortized over 50-year period at 5 percent.

3/ Pasture maintenance of \$8.00 per acre per year.

4/ Included in clearing costs.

Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - West Fork  
 State - Kentucky

TABLE VII - SUMMARY  
 ANALYSIS OF FARM DRAINAGE SYSTEMS COSTS

Zone/Soil mapping unit and land use	Area	Total cost Installation <u>1/</u>	Annual equivalent, cost <u>2/</u>	Annual maintenance cost	Total annual cost
		<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>
7 - Cropland	1,184	28,137	3,643	3,247	6,890
7 - Pasture	290	5,760	746	222	968
8 - Cropland	53	1,260	163	145	308
8 - Pasture	44	874	113	34	147
Total	1,571	36,031	4,665	3,648	8,313

1/ Includes engineering and contingency.  
2/ Amortized at 5 percent over 10 years. (0.1295)



Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - West Fork  
 State - Kentucky

TABLE IX  
 SUMMARY OF ANNUAL NET PRODUCTION RETURNS  
 AND ASSOCIATED COSTS

Item	Total	Discounted Amount
	<u>Dollars</u>	<u>Dollars</u>
1. Net return with project	60,117	
2. Net return without project	30,705	
3. Gross benefit to project	29,412	23,316 <u>1/</u>
4. Farm drainage cost		
a. Installation cost	4,665	
b. Maintenance cost	3,648	
c. Total	8,313	6,590 <u>1/</u>
5. Conversion cost		
a. Installation cost	2,363	
b. Maintenance cost	1,560	
c. Total	3,923	3,110 <u>1/</u>

1/ Discounted for 10 year lag at 5 percent interest.

SUMMARY - TABLE II A  
(Zone for Drainage Calculations Only)  
COMPUTATION OF AGRICULTURAL PRODUCTION  
EXISTING CONDITIONS

Basin - West Ky. Tributaries  
Project - Mayfield Creek  
Reach - Wilson  
State - Kentucky

Soil unit	Land use and crop distribution	Acres	Production	
			Unit	Per acre <u>2/</u> Total
All	Open land	472		
	Crops:			
	Corn	193	bu.	31
	Soybeans	44	bu.	14
	Hay	49	ton	1.6
	Idle	52	-	-
	Pasture	106	lb.bf.	167
	Other <u>1/</u>	28	-	-
	Forest Land	73		
	Total	545 <u>3/</u>		17,678

- 1/ Farmsteads, farm roads, waste and non-agricultural.  
2/ Calculated from columns 3 and 6, rounded to nearest unit.  
3/ Total area, less 72 acres not needing drainage.

Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach- Wilson  
 State - Kentucky

SUMMARY - TABLE III A

(Zone for Drainage Calculations Only)

COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,  
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Production		Value of production		Cost of production		Net return	
			Unit	Per acre	2/ Total	Per unit	Total	Per acre		Total
All	Open land	383								
	Crops:									
	Corn	162	bu.	34	5,542	1.45	8,036	29.93	4,849	3,187
	Soybeans	17	bu.	25	420	2.30	966	29.47	501	465
	Hay	32	ton	1.8	57.6	20.00	1,152	32.96	1,055	97
	Idle	57	-	-	-					
	Pasture	88	lb.bf.	204	17,980	0.2004	3,603	21.10	1,857	1,746
	Other 1/	27	-	-	-					
	Forest land	16				11.64	186	6.32	101	85
	Total	400 4/					13,943		8,363	5,580

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Calculated from columns 3 and 6, rounded to nearest unit.

3/ Calculated from columns 3 and 10, rounded to nearest cent.

4/ Total area, less 160 acres not needing drainage or non-participation, and 57 acres estimated to remain in woodland.

SUMMARY - TABLE IV A  
 (Zone for Drainage Calculations Only)  
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,  
 AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices)

Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - Wilson  
 State - Kentucky

Soil unit	Land use and crop distribution	Acres	Unit	Production		Value of production		Cost of production		Net return
				Per acre	Total	Per unit	Total	Per acre	Total	
				2/				Dollars	Dollars	
All	Open land	400								
	Crops:									
	Corn	281	bu.	62	17,345	1.45	25,151	50.38	14,156	10,995
	Soybeans	17	bu.	29	485	2.30	1,116	32.82	558	558
	Hay	0	-	-	-	-	-	-	-	-
	Idle	16	-	-	-	-	-	-	-	-
	Pasture	58	lb.bf.	279	16,156	0.2004	3,237	27.57	1,599	1,638
	Other 1/	28	-	-	-	-	-	-	-	-
	Forest land	0	-	-	-	-	-	-	-	-
	Total	400	4/				29,504		16,313	13,191

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Calculated from columns 3 and 6, rounded to nearest unit.

3/ Calculated from columns 3 and 10, rounded to nearest cent.

4/ Total area, less 160 acres not needing drainage or non-participation, and 57 acres estimated to remain in woodland.



Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - Wilson  
 State - Kentucky

SUMMARY - TABLE II B  
 (Zone for Drainage and Flood Control Calculations)  
 COMPUTATION OF AGRICULTURAL PRODUCTION  
EXISTING CONDITIONS

Soil unit	Land use and crop distribution	Acre	Production	
			Unit	Per acre 2/ Total
All	Open land	298		
	Crops:			
	Corn	136	bu.	34
	Soybeans	37	bu.	20.
	Hay	27	ton	1.6
	<u>Idle</u>			
	Pasture	12	-	-
	Other 1/	70	lb.bf.	177
	Forest Land	16		
		90		12,372
	Total	388		

1/ Farmsteads, farm roads, waste and non-agricultural.  
 2/ Calculated from columns 3 and 6, rounded to nearest unit.

Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - Wilson  
 State - Kentucky

SUMMARY - TABLE III B

(Zone for Drainage Calculations Only)

COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,  
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Production		Value of production		Cost of production		Net return		
			Unit	Per acre	2/	Total	Per unit	Total		Per acre	Total
All	Open land	288									
	Corps:										
	Corn	85	bu.	41	3,476	1.45	5,041	34.64	2,944	2,097	
	Soybeans	45	bu.	27	1,193	2.30	2,744	31.00	1,395	1,349	
	Hay	30	ton	1.8	54	20.00	1,080	32.96	989	91	
	Idle	13	-	-	-	-	-	-	-	-	
	Pasture	99	lb.bf.	217	21,485	0.2004	4,306	22.25	2,203	2,103	
	Other 1/	16	-	-	-	-	-	-	-	-	
	Forest land	42				11.64	489	6.32	265	224	
	Total	330 4/					13,660		7,796	5,864	

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Calculated from columns 3 and 6, rounded to nearest unit.

3/ Calculated from columns 3 and 10, rounded to nearest cent.

4/ Total area, less 58 acres to remain in woods because of non-participation in land conversions.

Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - Wilson  
 State - Kentucky

SUMMARY - TABLE IV B

(Zone for Drainage and Flood Control Calculations)

COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,  
 AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Production		Value of production		Cost of production		Net return
			Unit	Per acre	2/ Total	Per unit	Total	Per acre	Total
						Dollars	Dollars	Dollars	Dollars
All	Open land	330							
	Crops:								
	Corn	170	bu.	59	10,078	1.45	14,613	48.68	8,276
	Soybeans	45	bu.	29	1,295	2.30	2,979	33.09	1,489
	Hay	22	ton	2.3	51	20.00	1,020	41.41	911
	Idle	5	-	-	-	-	-	-	-
	Pasture	72	lb.bf.	267	19,189	0.2004	3,845	26.58	1,914
	Other 1/	16	-	-	-	-	-	-	-
	Forest land	0	-	-	-	-	-	-	-
	Total	330	4/				22,457		12,590
									9,867

37

- 1/ Farmsteads, farm roads, waste and non-agricultural.
- 2/ Calculated from columns 3 and 6, rounded to nearest unit.
- 3/ Calculated from columns 3 and 10, rounded to nearest cent.
- 4/ Total area, less 58 acres to remain in woods because of non-participation in land conversions.



TABLE V  
WILSON REACH SUMMARY BY SOIL MAPPING UNITS

Basin - West Ky. Tributaries  
Project - Mayfield Creek  
Reach - Wilson  
State - Kentucky

Soil unit	Acres	Future without project (value of production in dollars)		Future with project (value of production in dollars)		Difference in net value
		Gross	Cost	Net	Gross	
ZONE A (Not subject to flooding)						
7	308	12,486	7,319	5,167	25,613	11,474
8	64	1,457	1,044	413	3,891	1,717
Subtotal 2/	372	13,943	8,363	5,580	29,504	13,191
ZONE B - (Subject to flooding)						
7	268	12,972	7,381	5,591	20,362	8,965
8	46	688	415	273	2,095	902
Subtotal 3/	314	13,660	7,796	5,864	22,457	9,867
Total	686 1/	27,603	16,159	11,444	51,961	23,058
						11,614

- 1/ Total area of Wilson Reach, less acreage in notes 2 and 3 below.  
2/ Total area of Zone A reduced by 245 acres not anticipated to receive drainage benefits from project.  
3/ Total area of Zone B reduced by 16 acres "other" land and 58 acres estimated to remain as woodland.



Basin - West Ky. Tributaries  
 Project- Mayfield Creek  
 Reach - Wilson  
 State - Kentucky

TABLE VI  
 LAND CONVERSIONS WITH PROJECT

Type of Conversion <u>1/</u>	Total Amount	Cost of clearing	Cost of smoothing	Cost of Pasture establishment	Total Cost
	<u>Acres</u>	<u>Dollars</u>	<u>Dollars</u> <u>4/</u>	<u>Dollars</u>	<u>Dollars</u>
<u>Per Acre</u>					
W to GC	-	56	-	-	56
W to P	-	56	-	40	96
P to GC	-	-	-	-	0
X to P	-	-	-	40	40
X to GC	-	-	-	-	0
GC to P	-	-	-	40	40
<u>Wilson Creek</u>					
W to GC	58	3,248	-	-	3,248
W. to P	3	168	-	120	288
P to GC	68	0	-	-	0
X to P	7	-	-	280	280
X to GC	39	-	-	-	0
GC to P	-	-	-	-	0
Total Wilson Creek Reach					3,816
Annual amortized value <u>2/</u>					209
Annual maintenance <u>3/</u>				80	80
Total annual cost of conversions					289

1/ W--woodland; GC--general crops; P--pasture; X--idle.

2/ Amortized over 50-year period at 5 percent.

3/ Pasture maintenance at \$8.00 per acre per year.

4/ Included in clearing costs.

Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - Wilson  
 State - Kentucky

TABLE VII - SUMMARY  
 ANALYSIS OF FARM DRAINAGE SYSTEMS COSTS

Zone/Soil mapping unit and land use	Area	Total cost Installation	Annual equivalent cost 1/ cost 2/	Annual maintenance cost	Total annual cost
	<u>Acres</u>	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>
7- Cropland	411	9,767	1,265	1,127	2,392
7- Pasture	100	1,987	257	76	333
8- Cropland	78	1,854	240	214	454
8- Pasture	22	437	57	17	74
Total	611	14,045	1,819	1,434	3,253

1/ Includes engineering and contingency.

2/ Amortized at 5 percent over 10 years. (0.1295)

Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - Wilson  
 State - Kentucky

TABLE IX  
 SUMMARY OF ANNUAL NET PRODUCTION RETURNS  
 AND ASSOCIATED COSTS

Item	Total	Discounted amount
	<u>Dollars</u>	<u>Dollars</u>
1. Net return with project	23,058	
2. Net return without project	11,444	
3. Gross benefit to project	11,614	9,207 <u>1/</u>
4. Farm drainage cost		
a. Installation cost	1,819	
b. Maintenance cost	1,434	
c. Total	3,253	2,579 <u>1/</u>
5. Conversion cost		
a. Installation cost	209	
b. Maintenance cost	80	
c. Total	289	229 <u>1/</u>

1/ Discounted for a 10-year lag at 5 percent interest.

Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - 1  
 State - Kentucky

SUMMARY - TABLE II C  
 (Zone of No Project Benefit)  
 COMPUTATION OF AGRICULTURAL PRODUCTION: EXISTING CONDITIONS

Soil unit	Land use and crop distribution	Acres	Production		
			Unit	Per acre	Total
All	Open land	3,544			
	Crops:				
	Corn	1,571	bu.	43	67,934
	Soybeans	509	bu.	23	11,912
	Hay	375	ton	1.5	561
	Idle	484	-	-	-
	Pasture	379	lb.bf.	164	62,009
	Other l/	226	-	-	-
	Forest land	6,952			
	Total	10,496			

1/ Farmsteads, farm roads, waste and non-agricultural.  
 2/ Calculated from columns 3 and 6, rounded to nearest unit.



Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - 1  
 State - Kentucky

SUMMARY - TABLE III C  
 (Zone of No-Project Benefit)

COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,  
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Production		Value of production		Cost of production		Net return
			Unit	Per acre	2/ Total	Per unit	Total	Per acre	Total
						Dollars	Dollars	Dollars	Dollars
All	Open land	4,670							
	Crops:								
	Corn	2,220	bu.	49	109,674	1.45	159,027	40.93	90,866
	Soybeans	1,144	bu.	29	32,725	2.30	75,267	34.79	39,800
	Hay	270	ton	1.7	470.6	20.00	9,412	32.04	8,650
	Idle	385	-	-	-	-	-	-	-
	Pasture	425	lb.bf.	197	83,789	0.2004	16,791	20.28	8,620
	Other 1/	226	-	-	-	-	-	-	-
	Forest land	5,826				14.86	86,573	8.35	48,649
	Total	10,496					347,070		196,585
									150,485

- 1/ Farmsteads, farm roads, waste and non-agricultural.  
 2/ Calculated from columns 3 and 6, rounded to nearest unit.  
 3/ Calculated from columns 3 and 10, rounded to nearest cent.

Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - 1  
 State - Kentucky

TABLE V  
 REACH 1 SUMMARY BY SOIL MAPPING UNITS

Soil unit	Acres	Future without project (value of production in dollars)		Future with project 2/ (value of production in dollars)		Difference in net value	
		Gross	Net	Gross	Net		
		ZONE C --(Subject to flooding)					
5	1,354	102,651	59,589	43,062	59,589	43,062	0
6	2,550	109,430	58,845	109,430	58,845	50,585	0
7	1,852	64,910	37,127	64,910	37,127	27,783	0
8	3,967	57,357	33,333	57,357	33,333	24,024	0
9	106	4,390	2,696	4,390	2,696	1,694	0
10	102	2,745	1,835	2,745	1,835	910	0
11	24	1,219	705	1,219	705	514	0
13	38	267	150	267	150	117	0
14	277	4,101	2,305	4,101	2,305	1,796	0
Total	10,270 1/	347,070	196,585	347,070	196,585	150,485	0

1/ Total area of Zone C reduced by 226 acres "other" land.  
 2/ Zone C is assumed to be the same as future conditions without project.

Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - 5  
 State - Kentucky

SUMMARY - TABLE II C  
 (Zone of No Project Benefit)  
 COMPUTATION OF AGRICULTURAL PRODUCTION: EXISTING CONDITIONS

Soil unit	Land use and crop distribution	Acres	Production	
			Unit	Per acre <sup>2</sup> / <sub>2</sub> Total
All	Open land	2,289		
	Crops:			
	Corn	1,523	bu.	31 47,361
	Soybeans	79	bu.	17 1,330
	Hay	104	ton	1.4 141
	Idle	125	-	-
	Pasture	363	lb.bf.	167 60,657
	Other <sup>1</sup> / <sub>1</sub>	95	-	-
	Forest Land	460		
	Total	2,749		

<sup>1</sup>/ Farmsteads, farm roads, waste and non-agricultural.  
<sup>2</sup>/ Calculated from columns 3 and 6, rounded to nearest unit.

Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach - 5  
 State - Kentucky

SUMMARY - TABLE III C  
 (Zone of No Project Benefit)  
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,  
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Production		Value		Cost		Net return						
			Unit	Per acre	2/	Total	of production	Per unit		Total	of production	Per acre	Total		
														Dollars	Dollars
All	Open land	2,314													
	Crops:														
	Corn	1,467	bu.	39	56,822	1.45	82,392	32.75	48,041	34,351					
	Soybeans	94	bu.	24	2,224	2.30	5,115	28.69	2,697	2,418					
	Hay	101	ton	1.5	160.2	20.00	3,204	29.47	2,977	227					
	Idle	80	-	-	-	-	-	-	-	-					
	Pasture	477	lb.bf.	199	95,049	0.2004	19,048	20.53	9,791	9,257					
	Other 1/	95	-	-	-	-	-	-	-	-					
	Forest land	435	-	-	-	12.06	5,247	5.67	2,466	2,781					
	Total	2,749					115,006		65,972	49,034					

1/ Farmsteads, farm roads, waste and non-agricultural.  
 2/ Calculated from columns 3 and 6, rounded to nearest unit.  
 3/ Calculated from columns 3 and 10, rounded to nearest cent.



Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 Reach 5, Zone C  
 State - Kentucky

TABLE V  
 REACH 5 - ZONE C SUMMARY BY SOIL MAPPING UNITS

Soil unit	Acres	Future without project (value of production in dollars)		Future with project 2/ (value of production in dollars)		Difference in net value
		Gross	Net	Gross	Net	
<u>ZONE C - (Subject to flooding)</u>						
7	2,246	106,538	60,507	106,538	60,507	0
8	408	8,468	5,465	8,468	5,464	0
Total	2,654	115,006	65,972	115,006	65,972	0

1/ Total area of Zone C reduced by 95 acres "other" land.

2/ Zone C is assumed to be the same as future conditions without project.

Basin - West Ky. Tributaries  
 Project - Mayfield Creek  
 State - Kentucky

TABLE V  
 PROJECT AREA SUMMARY

Reach	1/ Acres	Future without project (value of production in dollars)		Future with project 3/ (value of production in dollars)		Difference in net value
		Gross	Net	Gross	Net	
Reach 1	10,270	347,070	150,485	347,070	150,485	0
2	2,435	93,810	40,100	158,074	69,751	29,651
3	4,038	159,276	67,110	285,172	123,933	56,823
4	4,461	156,738	61,759	287,023	119,035	57,276
5	1,433	55,680	22,259	99,265	42,355	20,096
West Fork Reach	1,754	70,776	30,705	135,417	60,117	29,412
Wilson Ck. Reach	686	27,603	11,444	51,961	23,058	11,614
Zone C, Reach 5	2,654	115,006	49,034	115,006	49,034	0
Total	2/ 27,731	1,025,959	432,896	1,478,988	637,768	204,872

1/ Reach 2, 3, 4, 5, Wilson, and West Fork contain both A and B Zones.

2/ Total area of A Zones reduced by 1,801 acres not anticipated to receive drainage benefits from project; and total area of Zones B and C reduced by 829 acres "other" land and 7,424 acres estimated to remain as woodland.

3/ Includes Zone C which is assumed to be the same as future conditions without project.

OBION CREEK  
Portion of  
WEST KENTUCKY TRIBUTARIES  
of  
MR & T STUDY

SUMMARY TABLES





TABLE I

Existing Land Use By Soil Mapping Units

Zone C - No Project Benefits (Reach 1)			
Soil mapping unit	Open (Acres)	Wooded (Acres)	Total (Acres)
1	506	3,344	3,850
2	647	81	728
5	1,214	808	2,022
6	234	1,588	1,822
7	1,416	347	1,763
8	851	2,969	3,820
9	223	28	251
10	411	45	456
11	243	588	831
13	10		10
Subtotal-all soils	5,755	9,798	15,553
Water			412
Total - Zone C, Reach 1	5,755	9,798	15,965
Zone B - Drainage and Flood Control Calculations (Reach 2)			
7	2,460	1,555	4,015
8	488	5,233	5,721
14	6	867	873
Subtotal -all soils	2,954	7,655	10,609
Water			247
Total - Zone B	2,954	7,655	10,856
Zone A - Drainage Calculations Only (Reach 2)			
7	1,725	723	2,448
8	343	593	936
14		9	9
Subtotal - all soils	2,068	1,325	3,393
Water			5
Total - Zone A	2,068	1,325	3,398
Zone C - No Project Benefits (Reach 2)			
7	1,173	251	1,424
8	222	110	332
13	8	59	67
14	3	3	6
Subtotal - all soils	1,406	423	1,829
Water			39
Total -Zone C -Reach 2	1,406	423	1,868
TOTAL PROJECT	12,183	19,201	32,087*

\*Includes 703 Ac. Water

Basin - West Ky. Tributaries  
 Project - Obion Creek  
 Reach - 2  
 State - Kentucky

SUMMARY - TABLE II A  
 (Zone for Drainage Calculations Only)  
 COMPUTATION OF AGRICULTURAL PRODUCTION  
EXISTING CONDITIONS

Soil unit	Land use and crop distribution	Acres	Unit	Production	
				Per acre	Total
All	Open land	1,961			
	Crops:				
	Corn	950	bu.	32	30,666
	Soybeans	134	bu.	14	1,880
	Hay	75	ton	1.2	90
	Idle	367	-	-	-
	Pasture	332	lb.bf.	174	57,844
	Other 1/	103	-	-	-
	Forest land	1,289			
	Total	3,250	3/		

- 1/ Farmsteads, farm roads, waste and non-agricultural.  
 2/ Calculated from columns 3 and 6, and rounded to nearest unit.  
 3/ Total area, less 148 acres not needing drainage.

Basin - West Ky. Tributaries  
 Project - Obion Creek  
 Reach - 2  
 State - Kentucky

SUMMARY - TABLE III A  
 (Zone for Drainage Calculations Only)

COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,  
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Production		Value of production		Cost of production		Net return		
			Unit	Per acre	2/	Total	Per unit	Total		Per acre	Total
			Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars		
All	Open land	1,426						37			
	Crops:										
	Corn	782	bu.	40	31,312	1.45	45,402	33.56	26,246		
	Soybeans	104	bu.	20	2,110	2.30	4,853	26.10	2,715		
	Hay	61	ton	1.3	81.6	20.00	1,636	25.49	1,555		
	Idle	104	-	-	-	-	-	-	81		
	Pasture	272	lb.bf.	210	57,001	0.2004	11,423	21.70	5,904		
	Other 1/	103	-	-	-	-	-	-	5,519		
	Forest Land	380									
							3,097	4.71	1,789		
	Total	1,806	4/				66,411		38,209		
									28,202		

3/

- 1/ Farmsteads, farm roads, waste and non-agricultural.  
 2/ Calculated from columns 3 and 6, rounded to nearest unit.  
 3/ Calculated from columns 3 and 10, rounded to nearest cent.  
 4/ Total area, less 647 acres not needing drainage or non-participation in drainage and 945 acres estimated to remain in woods due to non-participation in land conversions.

Basin - West Ky, Tributaries  
 Project - Obion Creek  
 Reach - 2  
 State - Kentucky

SUMMARY - TABLE IV A  
 (Zone for Drainage Calculations only)

COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,  
 AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Unit	Production		Value of production		Cost of production		Net return
				Per acre	2/ Total	Per unit	Total	Per acre	Total	
				Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	
All	Open land	1,806	.					3/		
	Crops:									
	Corn	1,077	bu.	64	68,905	1.45	99,912	52.11	56,125	43,787
	Soybeans	174	bu.	27	4,685	2.30	10,775	31.41	5,466	5,309
	Hay	110	ton	2.2	2,375	20.00	11,750	38.81	4,269	481
	Idle	-	-	-	-	-	-	-	-	-
	Pasture	342	lb.bf.	277	94,896	0.2004	19,017	27.49	9,401	9,616
	Other 1/	103	-	-	-	-	-	-	-	-
	Forest land	0	-	-	-	-	-	-	-	-
	Total	1,806	4/							75,261



Basin - West Ky. Tributaries  
 Project - Obion Creek  
 Reach - 2  
 State - Kentucky

SUMMARY - TABLE II B  
 (Zone for Drainage and Flood Control Calculations)  
 COMPUTATION OF AGRICULTURAL PRODUCTION  
 EXISTING CONDITIONS

Soil Unit	Land use, and crop distribution	Acres	Unit	Production	
				Per Acre	Total
All	Open land	3,201			
	Crops:				
	Corn	691	bu.	33	23,045
	Soybeans	248	bu.	20	4,985
	Hay	148	ton	1.6	237
	Idle	342	-	-	-
	Pasture	1,525	lb.bf.	173	265,215
	Other 1/	247	-	-	-
	Forest Land	7,655			
	Total	10,856			

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Calculated from 3 and 6, rounded to nearest unit.

Basin - West Ky. Tributaries  
Project - Obion Creek  
Reach - 2  
State - Kentucky

Soil Unit	Land use and crop distribution	Acres	Production		Value		Cost		Net return	
			Unit	Per acre	3/ Total	of production		of production		
						Per unit	Total	Per acre		Total
					Dollars	Dollars	Dollars	Dollars		
All	Open land	3,201								
	Crops:									
	Corn	684	bu.	40	27,191	1.45	39,427	33.87	23,167	16,260
	Soybeans	240	bu.	27	6,360	2.30	14,628	29.60	7,222	7,406
	Hay	156	ton	1.8	277	20.00	5,424	31.96	4,985	439
	Idle	326	-	-	-	-	-	-	-	-
	Pasture	1,548	lb.bf.	206	318,258	0.2004	63,779	21.07	32,624	31,155
	Other 1/	247	-	-	-	-	-	-	-	-
	Forest land	1,317				11.50	15,146	5.82	7,665	7,481
	Total	4,518 2/					138,404		75,663	62,741

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Total B Zone, less 6338 acres to remain in woods because of non-participation in land conversion.

3/ Calculated from columns 3 and 6, rounded to nearest unit.

4/ Calculated from columns 3 and 10, rounded to nearest cent.

Basin - West Ky. Tributaries  
 Project - Obion Creek  
 Reach - 2  
 State - Kentucky

SUMMARY - TABLE IV B  
 (Zone for Drainage and Flood Control Calculations)  
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,  
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Production		Value of production		Cost of production		Net return	
			Unit	Per acre	3/ Total	Per unit	Total	Per acre		Total
						Dollars	Dollars	Dollars		Dollars
ALL	Open land	4,518								
	Crops:									
	Corn	2,550	bu.	53	134,364	1.45	194,828	43.40	110,669	
	Soybeans	573	bu.	29	16,461	2.30	37,860	33.02	18,921	
	Hay	639	ton	2.3	1,454	20.00	29,076	40.70	26,010	
									84,159	
									18,939	
									3,066	
	Idle	0								
	Pasture	509	lb.bf.	220	112,157	0.2004	22,476	21.98	11,188	
Other 1/	247									
Forest land	0									
	Total	4,518 2/					284,240		166,788	
									117,452	

- 1/ Farmsteads, farm roads, waste and non-agricultural.  
 2/ Total, less 6338 acres to remain in woods because of non-participation in land conversions.  
 3/ Calculated from columns 3 and 6, rounded to nearest unit.  
 4/ Calculated from columns 3 and 10, rounded to nearest cent.

SUMMARY - TABLE II C  
 (Zone of No Project Benefit)  
 COMPUTATION OF AGRICULTURAL PRODUCTION: EXISTING CONDITIONS

Basin - West Ky. Tributaries  
 Project - Obion Creek  
 Reach - 2  
 State - Kentucky

Soil unit	Land use and crop distribution	Acres	Production		
			Unit	Per acre	Total
All	Open land	1,445			
	Crops:				
	Corn	712	bu.	30	21,534
	Soybeans	87	bu.	19	1,653
	Hay	50	ton	1.4	68.5
	Idle				
	Pasture	405	-	-	-
	Other 1/	152	lb.bf.	160	24,328
	Forest land	39	-	-	-
		<u>423</u>			
	Total	1,868			

1/ Farmsteads, farm roads, waste and non-agricultural,  
 2/ Calculated from columns 3 and 6, rounded to nearest unit.



Basin - West Ky. Tributaries  
 Project - Obion Creek  
 Reach - 2  
 State - Kentucky

SUMMARY - TABLE III C  
 (Zone of No Project Benefit)  
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION  
 COSTS, AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on  
 projected prices)

Soil unit	Land use and crop distribution	Acres	Unit	Per acre	2/ Total		Per unit	Total		Per acre	Total		Net return
					Dollars	Dollars		Dollars	Dollars		Dollars	Dollars	
All	Open land	1,495											
	Crops:												
	Corn	432	bu.	36	15,712		1.45	22,782		31.28	13,511		9,271
	Soybeans	97	bu.	25	2,412		2.30	5,548		29.62	2,873		2,675
	Hay	92	ton	1.6	148.0		20.00	2,960		29.84	2,746		214
	Idle	405	-	-	-								
	Pasture	430	lb.bf.	204	87,760		0.2004	17,587		21.08	9,064		8,523
	Other 1/	29	-	-	-								
	Forest land	373					15.49	5,778		8.88	3,313		2,465
	Total	1,868						54,655			31,507		23,148

- 1/ Farmsteads, farm roads, waste and non-agricultural.  
 2/ Calculated from columns 3 and 6, rounded to nearest unit.  
 3/ Calculated from columns 3 and 10, rounded to nearest cent.

Basin - West Ky. Tributaries  
 Project - Obion Creek  
 Reach - 2  
 State - Kentucky

TABLE V  
 REACH 2 SUMMARY BY SOIL MAPPING UNITS

Soil unit	Acres	Future without project (Value of production in dollars)		Future with project 1/ (value of production in dollars)		Difference in net value
		Gross	Net	Gross	Net	
ZONE A -(Not Subject to Flooding)						
7	1,470	62,029	35,156	117,656	52,390	25,517
8	336	4,382	3,053	16,799	6,804	5,475
14	0	-	-	-	-	0
Subtotal 2/	1,806	66,411	38,209	134,455	59,194	30,992
ZONES B AND C -(Subject to Flooding)						
7	4,305	162,316	90,043	255,593	106,326	34,053
8	1,813	27,861	15,604	77,383	31,345	19,088
13	69	914	524	914	390	0
14	199	1,968	999	5,005	2,539	1,570
Subtotal 3/	6,386	193,059	107,170	338,895	140,600	54,711
Total	8,192	259,470	145,379	473,350	199,794	85,703

1/ Includes Zone C which is assumed to be the same as future conditions without project.

2/ Total area of Zone A reduced by 1592 acres not anticipated to receive drainage benefits from project.

3/ Total area of Zones B and C reduced by 6338 acres estimated to remain as woodland.

Basin - West Ky. Tributaries  
 Project - Obion Creek  
 Reach -1  
 State - Kentucky

SUMMARY - TABLE II C  
 (Zone of No Project Benefits)  
 COMPUTATION OF AGRICULTURAL PRODUCTION: EXISTING CONDITIONS

Soil unit	Land use and crop distribution	Acres	Production		
			Unit	Per acre	Total
All	Open land	6,167			
	Crops:				
	Corn	2,845	bu.	43	121,772
	Soybeans	1,652	bu.	20	32,690
	Hay	198	ton	1.2	236
	Idle	550	-	-	-
	Pasture	638	lb.bf.	150	95,842
	Other 1/	412	-	-	-
	Forest land	9,798			
	Total	15,965			

1/ Farmsteads, farm roads, waste and non-agricultural.  
 2/ Calculated from columns 3 and 6, rounded to nearest unit.

SUMMARY - TABLE III C  
 (Zone of No Project Benefit)  
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,  
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

Basin - West Ky. Tributaries  
 Project - Obion Creek  
 Reach - 1  
 State - Kentucky

Soil unit	Land use and crop distribution	Acres	Production		Value of production		Cost of production		Net return
			Unit	Per acre2/ Total	Per unit	Total	Per acre	Total	
<hr/>									
All	Open land	7,101							
	Crops:								
	Corn	3,317	bu.	53	176,201	1.45	255,491	43.90	145,604
	Soybeans	1,767	bu.	26	46,787	2.30	107,612	31.27	55,253
	Hay	106	ton	1.75	180.2	20.00	3,604	31.34	3,322
	Idle								
	Pasture	1,489	lb.bf.	169	251,246	0.2004	50,350	17.03	25,362
	Other 1/	412	a	-	-	8.77	77,737	5.00	44,320
	Forest Land	8,864							
	Total	15,965					494,794	273,861	220,933

1/ Farmsteads, farm roads, waste and non-agricultural.  
 2/ Calculated from columns 3 and 6, rounded to nearest unit.



Basin - West Ky. Tributaries  
 Project - Obion Creek  
 Reach - 1  
 State - Kentucky

TABLE V  
 REACH 1 SUMMARY BY SOIL MAPPING UNITS

Soil Unit	Acres	Future without project		Future with project 1/ (value of production in dollars)		Difference in net value	
		(value of production in dollars)		(value of production in dollars)		(value of production in dollars)	
		Gross	Cost	Net	Gross	Cost	Net
ZONE C - (Subject to flooding)							
1	3,953	70,400	36,860	33,540	70,400	36,860	33,540
2	749	54,982	30,441	24,541	54,982	30,441	24,541
5	2,076	155,591	87,602	67,989	155,591	87,602	67,989
6	1,871	29,465	16,225	13,240	29,465	16,225	13,240
7	1,808	82,240	45,746	36,494	82,240	45,746	36,494
8	3,919	50,465	28,100	22,365	50,465	28,100	22,365
9	259	9,110	4,773	4,337	9,110	4,773	4,337
10	468	14,268	7,946	6,322	14,268	7,946	6,322
11	852	28,274	16,168	12,106	28,274	16,168	12,106
13	10	0	0	0	0	0	0
Total	15,965	494,795	273,861	220,934	494,795	273,861	220,934
							0

1/ Zone C is assumed to be the same as future conditions without project.

Basin - West Ky. Tributaries  
Project - Obion Creek  
State - Kentucky

TABLE V  
PROJECT AREA SUMMARY BY SOIL MAPPING UNITS

Zone and Soil Unit	Acres	Future without Project (value of production in dollars)		Future with Project 1/ (value of production in dollars)		Difference in net value		
		Gross	Net	Gross	Net			
		ZONE A - (Not Subject to Flooding)						
7	1,470	62,029	35,156	26,873	117,656	65,266	52,390	25,517
8	336	4,382	3,053	1,329	16,799	9,995	6,804	5,475
14	0	-	-	-	-	-	-	-
Subtotal	1,806 2/	66,411	38,209	28,202	134,455	75,261	59,194	30,992
ZONES B AND C --(Subject to Flooding)								
1	3,953	70,400	36,860	33,540	70,400	36,860	33,540	0
2	749	54,982	30,441	24,541	54,982	30,441	24,541	0
5	2,076	155,591	87,602	67,989	155,591	87,602	67,989	0
6	1,871	29,465	16,225	13,240	29,465	16,225	13,240	0
7	6,113	244,556	135,789	108,767	337,833	195,013	142,820	34,053
8	5,732	78,326	43,704	34,622	127,848	74,138	53,710	19,088
9	259	9,110	4,773	4,337	9,110	4,773	4,337	0
10	468	14,268	7,946	6,322	14,268	7,946	6,322	0
11	852	28,274	16,168	12,106	28,274	16,168	12,106	0
13	79	914	524	390	914	524	390	0
14	199	1,968	999	969	5,005	2,466	2,539	1,570
Subtotal	22,351 3/	687,854	381,031	306,823	833,690	472,156	361,534	54,711
Total	24,157	754,265	419,240	335,025	968,145	547,417	402,728	85,703

1/ Includes Zone C which is assumed to be the same as future without project.

2/ Total area of Zone A, reduced by 1592 acres not anticipated to receive drainage benefits from project.

3/ Total area of Zones B and C, reduced by 6338 acres estimated to remain in woodland.

Basin - West Ky. Tributaries  
 Project - Obion Creek  
 State - Kentucky

TABLE VI  
 LAND CONVERSIONS WITH PROJECT

Type of conversion <u>1/</u>	Total Amount	Cost of clearing	Cost of smoothing	Cost of Pasture establishment	Total cost
	<u>Acres</u>	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>
<u>3/</u>					
Per Acre					
W to GC	-	56	-	-	56
W to P	-	56	-	40	96
P to GC	-	-	-	-	0
X to P	-	-	-	40	40
X to GC	-	-	-	-	0
GC to P	-	-	-	40	40
Project					
W to GC	1,442	80,752	-	-	80,752
W to P	326	18,256	-	13,040	31,296
P to GC	1,308	-	-	-	-
X to P	69	-	-	2,760	2,760
X to GC	361	-	-	-	-
GC to P	0	-	-	-	-
Total project					114,808
Annual amortized value <u>2/</u>					6,289
Annual maintenance <u>4/</u>	-	-	-	3,160	3,160
Total annual cost of conversions	-	-	-	-	9,449

1/ W--woodland; GC--general crops; P--pasture; X--idle.

2/ Amortized over 50-year period at 5 percent.

3/ Included in cost of clearing.

4/ Pasture maintenance, \$8.00 per acre per year.

Basin - West Ky. Tributaries  
 Project - Obion Creek  
 State - Kentucky

TABLE VII  
 ANALYSIS OF FARM DRAINAGE SYSTEMS COSTS

Soil mapping unit and land use	Area	Total cost Installation 1/ Dollars	Annual equivalent cost 2/ Dollars	Annual maintenance cost Dollars	Total annual cost Dollars
7- Cropland	3,054	72,575	9,399	8,374	17,773
7- Pasture	436	8,661	1,122	333	1,455
8- Cropland	1,199	28,493	3,690	3,288	6,978
8- Pasture	163	3,238	419	124	543
14- Pasture	173	3,436	445	132	577
Total	5,025	116,403	15,075	12,251	27,326

1/ Includes engineering and contingency.

2/ Amortized at 5 percent over 10 years.

3/ "Other" land not included.



Basin - West Ky. Tributaries  
 Project - Obion Creek  
 State - Kentucky

TABLE IX  
 SUMMARY OF ANNUAL NET PRODUCTION RETURNS  
 AND ASSOCIATED COSTS

Item	Total	Discounted Amount
	<u>Dollars</u>	<u>Dollars</u>
1. Net return with project	420,728	
2. Net return without project	335,025	
3. Gross benefit to project	85,703	67,941 <u>1/</u>
4. Farm drainage cost		
a. Installation cost	15,075	
b. Maintenance cost	12,251	
c. Total	27,326	21,663 <u>1/</u>
5. Conversion cost		
a. Installation cost	6,289	
b. Maintenance cost	3,160	
c. Total	9,449	7,491 <u>1/</u>

1/ Discounted from 10-year lag at 5 percent interest.

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BAYOU DU CHIEN CREEK

Portion of  
WEST KENTUCKY TRIBUTARIES  
of  
MR & T STUDY

SUMMARY TABLES





Basin - West Ky. Tributaries  
 Project - Bayou du Chien  
 State - Kentucky

TABLE I

Existing Land Use by Soil Mapping Units

Zone A			
Soil mapping unit	Open (Acres)	Wooded (Acres)	Total (Acres)
7	1,106	291	1,397
8	142	241	383
14	7	16	23
Subtotal-all soils	1,255	548	1,803
Water	-	-	-
Total - Zone A			1,803
Zone B			
7	1,222	1,077	2,299
8	240	575	815
14	0	102	102
Subtotal-all soils	1,462	1,754	3,216
Water	-	-	83
Total - Zone B			3,299
Zone C			
1	294	4,140	4,435
2	103	8	111
6	94	19	113
7	1,953	680	2,633
8	965	4,287	5,252
9	223	7	230
10	1,445	302	1,747
11	5	0	5
14	0	235	235
Subtotal-all soils	5,082	9,678	14,760
Water	-	-	245
Total - Zone C			15,005
Total - All soils	7,799	11,980	19,779
Water	-	-	328
Total - Project	7,799	11,980	20,107

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Basin - West Ky. Tributaries  
 Project - Bayou du Chien  
 Reach - 2  
 State - Kentucky

SUMMARY - TABLE II A  
 (Zone for Drainage Calculations Only)  
 COMPUTATION OF AGRICULTURAL PRODUCTION  
 EXISTING CONDITIONS

Soil Unit	Land use and crcp distribution	Acres	Production	
			Unit	Per acre 2/ Total
All	Open land	1,091		
	Crops:			
	Corn	702	bu.	31 21,654
	Soybeans	39	bu.	19 741
	Hay	-	-	-
	Idle	63	-	-
	Pasture	233	lb.bf.	168 39,115
	Other 1/	54	-	-
	Forest land	534		
	Total	1,625 3/		

- 1/ Farmsteads, farm roads, waste and non-agricultural.  
 2/ Calculated from Columns 3 and 6; rounded to nearest unit.  
 3/ Total area Zone A, less 178 ac. not needing drainage.

The first of these is the fact that the  
 number of cases of disease is not  
 proportional to the number of persons  
 exposed to the disease.

The second

The third

The fourth

The fifth

The sixth

The seventh

The eighth

The ninth

The tenth

The eleventh

The twelfth

The thirteenth

The fourteenth

The fifteenth

The sixteenth

The seventeenth

The eighteenth

The nineteenth

The twentieth

The twenty-first

The twenty-second

The twenty-third

The twenty-fourth

The twenty-fifth

The twenty-sixth

The twenty-seventh

The twenty-eighth

The twenty-ninth

The thirtieth

The thirty-first

The thirty-second

The thirty-third

The thirty-fourth

The thirty-fifth



Basin - West Ky. Tributaries  
 Project - Bayou du Chien  
 Reach - 2  
 State - Kentucky

SUMMARY - TABLE III A  
 (Zone for Drainage Calculations Only)  
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,  
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

Soil Unit	Land use and crop distribution	Acres	Unit	Production		Value of production		Cost of production		Net return
				Per acre	Total	Per unit	Total	Per acre	Total	
				Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	
All	Open land	921								
	Crops:									
	Corn	411	bu.	39	16,126	1.45	23,383	33.06	13,588	9,795
	Soybeans	46	bu.	21	965	2.30	2,219	26.63	1,225	994
	Hay	8	tons	1.75	14	20.00	280	32.15	257	23
	Idle	26		-	-	-	-	-	-	-
	Pasture	384	lb.bf.	206	79,123	0.2004	15,856	21.30	8,180	7,676
	Other 1/	46	-	-	-	-	-	-	-	-
	Forest land	90	-	-	-	9.39	845	5.14	463	382
	Total	1,011	4/				42,583		23,713	18,870

- 1/ Farmsteads, farm roads, waste and non-agricultural.  
 2/ Calculated from Columns 3 and 6: rounded to nearest unit.  
 3/ Calculated from Columns 3 and 10: rounded to nearest cent.  
 4/ Total area Zone A, less 357 ac. not needing drainage and non-participation, and 435 ac. estimated to remain in woodland.

The following table shows the results of the experiments conducted on the 10th and 11th of May 1881. The first column gives the number of the experiment, the second column the time taken for the reaction to take place, the third column the amount of gas evolved, and the fourth column the weight of the substance used.

Experiment	Time taken for reaction to take place	Amount of gas evolved	Weight of substance used
1	10.0	1.0	1.0
2	10.0	1.0	1.0
3	10.0	1.0	1.0
4	10.0	1.0	1.0
5	10.0	1.0	1.0
6	10.0	1.0	1.0
7	10.0	1.0	1.0
8	10.0	1.0	1.0
9	10.0	1.0	1.0
10	10.0	1.0	1.0

The results of the experiments show that the reaction takes place very rapidly, and that the amount of gas evolved is proportional to the weight of the substance used.

Basin - West Ky, Tributaries  
 Project - Bayou du Chien  
 Reach - 2  
 State - Kentucky

SUMMARY - TABLE IV A  
 (Zone for Drainage Calculations Only)  
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,  
 AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Production		Value of production		Cost of production		Net return
			Unit	Per acre	2/ Total	Per unit	Total	Per acre	Total
						Dollars	Dollars	Dollars	Dollars
All	Open land	1,011							
	Crops:								
	Corn	643	bu.	63	40,655	1.45	58,949	51.53	33,135
	Soybeans	60	bu.	28	1,690	2.30	3,887	32.52	1,951
	Hay	26	ton	2.5	65	20.00	1,300	44.37	1,154
	Idle								
	Pasture	232	lb.bf.	274	63,767	0.2004	12,779	27.21	6,312
	Other 1/	50							
	Forest land	0							
Total		1,011 4/					76,915		42,552
									34,363

- 1/ Farmsteads, farm roads, waste and non-agricultural.  
 2/ Calculated from Columns 3 and 6 and rounded to nearest unit.  
 3/ Calculated from Columns 3 and 10 and rounded to nearest cent.  
 4/ Total area Zone A, less 357 acres not needing drainage and non-participation and 435 ac. estimated to remain in woodland.





Basin - West Ky. Tributaries  
Project - Bayou du Chien  
Reach - 2  
State - Kentucky

SUMMARY - TABLE II B

(Zone for Drainage and Flood Control Calculations)

COMPUTATION OF AGRICULTURAL PRODUCTION

EXISTING CONDITIONS

Soil unit	Land use and crop distribution	Acres	Production		
			Unit	Per acre	Total
All	Openland	1,545			
	Crops:				
	Corn	774	bu.	34	26,618
	Soybeans	212	bu.	20	4,140
	Hay	147	Tons	1.6	235
	Idle	84	-	-	-
	Pasture	245	lb.bf.	143	34,947
	Other 1/	83	-	-	-
	Forest land	1,754			
	Total	3,299			

1/ Farmsteads, farm roads, waste and non-agricultural

2/ Calculated from Columns 3 and 6, rounded to nearest unit.

1. The following table shows the results of the experiments conducted by the author in the year 1887.

No.	Date	Temperature		Time	Remarks
		Air	Water		
1	Jan 1	32	32	10	Clear
2	Jan 2	35	35	12	Clear
3	Jan 3	38	38	15	Clear
4	Jan 4	40	40	18	Clear
5	Jan 5	42	42	20	Clear
6	Jan 6	45	45	22	Clear
7	Jan 7	48	48	25	Clear
8	Jan 8	50	50	28	Clear
9	Jan 9	52	52	30	Clear
10	Jan 10	55	55	32	Clear
11	Jan 11	58	58	35	Clear
12	Jan 12	60	60	38	Clear
13	Jan 13	62	62	40	Clear
14	Jan 14	65	65	42	Clear
15	Jan 15	68	68	45	Clear
16	Jan 16	70	70	48	Clear
17	Jan 17	72	72	50	Clear
18	Jan 18	75	75	52	Clear
19	Jan 19	78	78	55	Clear
20	Jan 20	80	80	58	Clear
21	Jan 21	82	82	60	Clear
22	Jan 22	85	85	62	Clear
23	Jan 23	88	88	65	Clear
24	Jan 24	90	90	68	Clear
25	Jan 25	92	92	70	Clear
26	Jan 26	95	95	72	Clear
27	Jan 27	98	98	75	Clear
28	Jan 28	100	100	78	Clear
29	Jan 29	102	102	80	Clear
30	Jan 30	105	105	82	Clear
31	Jan 31	108	108	85	Clear
32	Feb 1	110	110	88	Clear
33	Feb 2	112	112	90	Clear
34	Feb 3	115	115	92	Clear
35	Feb 4	118	118	95	Clear
36	Feb 5	120	120	98	Clear
37	Feb 6	122	122	100	Clear
38	Feb 7	125	125	102	Clear
39	Feb 8	128	128	105	Clear
40	Feb 9	130	130	108	Clear
41	Feb 10	132	132	110	Clear
42	Feb 11	135	135	112	Clear
43	Feb 12	138	138	115	Clear
44	Feb 13	140	140	118	Clear
45	Feb 14	142	142	120	Clear
46	Feb 15	145	145	122	Clear
47	Feb 16	148	148	125	Clear
48	Feb 17	150	150	128	Clear
49	Feb 18	152	152	130	Clear
50	Feb 19	155	155	132	Clear
51	Feb 20	158	158	135	Clear
52	Feb 21	160	160	138	Clear
53	Feb 22	162	162	140	Clear
54	Feb 23	165	165	142	Clear
55	Feb 24	168	168	145	Clear
56	Feb 25	170	170	148	Clear
57	Feb 26	172	172	150	Clear
58	Feb 27	175	175	152	Clear
59	Feb 28	178	178	155	Clear
60	Feb 29	180	180	158	Clear
61	Mar 1	182	182	160	Clear
62	Mar 2	185	185	162	Clear
63	Mar 3	188	188	165	Clear
64	Mar 4	190	190	168	Clear
65	Mar 5	192	192	170	Clear
66	Mar 6	195	195	172	Clear
67	Mar 7	198	198	175	Clear
68	Mar 8	200	200	178	Clear
69	Mar 9	202	202	180	Clear
70	Mar 10	205	205	182	Clear
71	Mar 11	208	208	185	Clear
72	Mar 12	210	210	188	Clear
73	Mar 13	212	212	190	Clear
74	Mar 14	215	215	192	Clear
75	Mar 15	218	218	195	Clear
76	Mar 16	220	220	198	Clear
77	Mar 17	222	222	200	Clear
78	Mar 18	225	225	202	Clear
79	Mar 19	228	228	205	Clear
80	Mar 20	230	230	208	Clear
81	Mar 21	232	232	210	Clear
82	Mar 22	235	235	212	Clear
83	Mar 23	238	238	215	Clear
84	Mar 24	240	240	218	Clear
85	Mar 25	242	242	220	Clear
86	Mar 26	245	245	222	Clear
87	Mar 27	248	248	225	Clear
88	Mar 28	250	250	228	Clear
89	Mar 29	252	252	230	Clear
90	Mar 30	255	255	232	Clear
91	Mar 31	258	258	235	Clear
92	Apr 1	260	260	238	Clear
93	Apr 2	262	262	240	Clear
94	Apr 3	265	265	242	Clear
95	Apr 4	268	268	245	Clear
96	Apr 5	270	270	248	Clear
97	Apr 6	272	272	250	Clear
98	Apr 7	275	275	252	Clear
99	Apr 8	278	278	255	Clear
100	Apr 9	280	280	258	Clear

The following table shows the results of the experiments conducted by the author in the year 1887. The table is divided into two parts, the first part showing the results of the experiments conducted in the month of January, and the second part showing the results of the experiments conducted in the month of February. The first part of the table shows the results of the experiments conducted in the month of January, and the second part shows the results of the experiments conducted in the month of February. The first part of the table shows the results of the experiments conducted in the month of January, and the second part shows the results of the experiments conducted in the month of February.

Basin - West Ky. Tributaries  
 Project - Bayou du Chien  
 Reach - 2  
 State - Kentucky

SUMMARY - TABLE III B  
 (Zone for Drainage and Flood Control Calculations)  
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS  
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

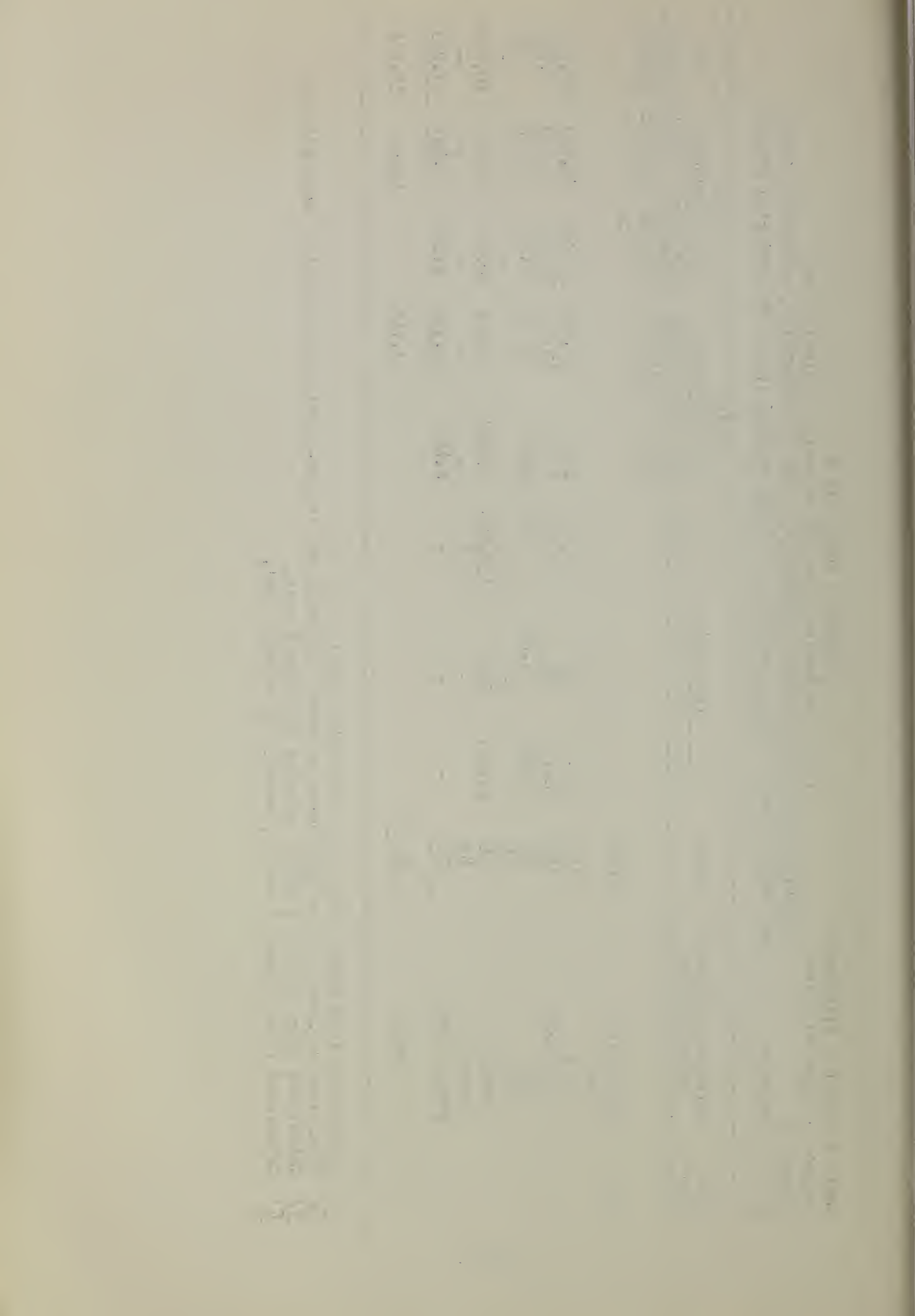
Soil unit	Land use and crop distribution	Acres	Unit	Production		Value of production		Cost of production		Net return Dollars
				Per acre	3/ Total	Per unit Dollars	Total Dollars	Per acre Dollars	Total Dollars	
All	Open land	1,622								
	Crops:									
	Corn	642	bu.	42	26,903	1.45	39,010	35.26	22,639	16,371
	Soybeans	182	bu.	26	4,695	2.30	10,799	30.35	5,523	5,276
	Hay	85	tons	1.8	154	20.00	3,076	32.96	2,802	274
	Idle	84		-	-	-	-	-	-	-
	Pasture	546	lb.bf.	202	110,526	0.2004	22,149	20.64	11,269	10,880
	Other 1/	83		-	-	-	-	-	-	-
	Forest land	320	-	-	-	8.48	2,714	4.46	1,427	1,287
	Total	1,942	2/				77,748		43,660	34,088

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Total area of Zone B, less 1357 acres to remain in woods due to non-participation in land conversions.

3/ Calculated from Columns 3 and 6, rounded to nearest unit.

4/ Calculated from Columns 3 and 10, rounded to nearest cent.





Basin - West Ky. Tributaries  
 Project - Bayou du Chien  
 Reach - 2  
 State - Kentucky

SUMMARY - TABLE IV B  
 (Zone for Drainage and Flood Control Calculations)  
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,  
 AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Production			Value of production		Cost of production		Net return Dollars
			Unit	Per acre	3/ Total	Per unit Dollars	Total Dollars	Per acre Dollars	Total Dollars	
All	Open land	1,942								
	Crops:									
	Corn	1,189	bu.	58	69,676	1.45	101,031	48.11	57,199	43,832
	Soybeans	311	bu.	29	9,164	2.30	21,077	33.99	10,572	10,505
	Hay	136	tons	2.4	327.8	20.00	6,556	42.90	5,834	722
	Idle	-	-	-	-	-	-	-	-	-
	Pasture	212	lb.bf.	241	51,166	0.2004	10,253	24.26	5,144	5,109
	Other 1/	83	-	-	-	-	-	-	-	-
	Forest land	0								
	Total	1,942 2/						138,917	78,749	60,168

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Total area of Zone B, less 1357 acres to remain in woods due to non-participation in land conversions.

3/ Calculated from Columns 3 and 6, rounded to nearest unit.

4/ Calculated from Columns 3 and 10, rounded to nearest cent.

1. The first part of the paper is devoted to a general discussion of the problem. It is shown that the problem is of great importance in the theory of differential equations.

Date	Time	Place	Weather	Remarks
1910	10:00	New York	Clear	First observation.
1910	11:00	New York	Clear	Second observation.
1910	12:00	New York	Clear	Third observation.
1910	13:00	New York	Clear	Fourth observation.

The second part of the paper is devoted to a detailed analysis of the results obtained in the first part. It is shown that the results are in good agreement with the theoretical predictions.

Basin - West Ky. Tributaries  
 Project - Bayou du Chien  
 Reach - 2  
 State - Kentucky

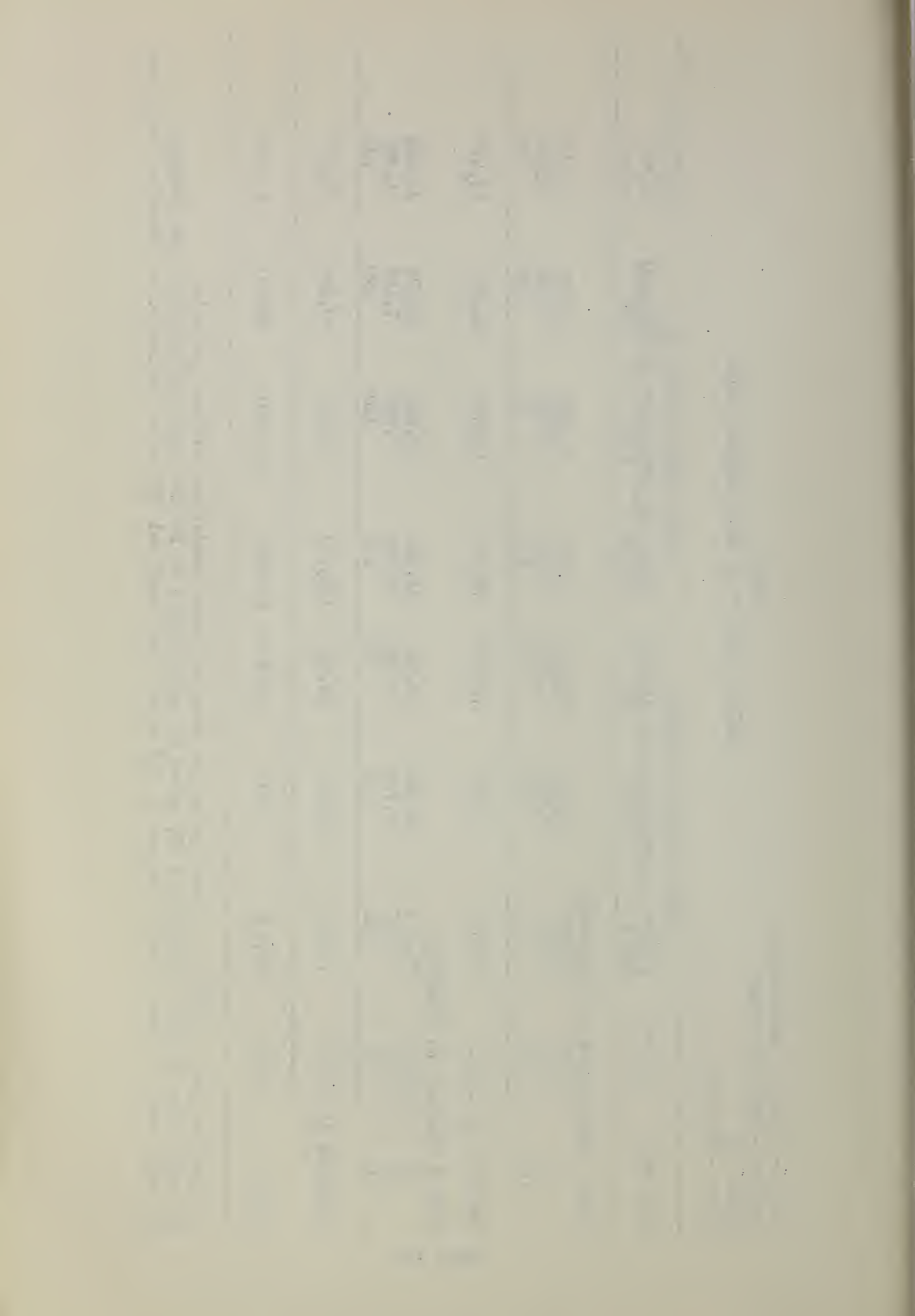
TABLE V  
 REACH 2 Summary by Soil Mapping Units

Soil Unit	Acres	Future without project (value of production in dollars)		Future with project 1/ (value of production in dollars)		Difference in net value
		Gross	Net	Gross	Net	
ZONE A (Not subject to flooding)						
7	875	39,672	17,722	69,526	30,971	13,249
8	129	2,845	1,120	7,188	3,290	2,170
14	7	66	30	201	102	72
Subtotal 2/ 1,011						
		42,583	18,872	76,915	34,363	15,491
ZONE B (Subject to flooding)						
7	1,522	70,726	30,943	121,681	52,427	21,484
8	315	6,835	3,056	16,606	7,421	4,365
14	22	186	88	630	320	232
Subtotal 3/ 1,859						
		77,747	34,087	138,917	60,168	26,081
Total						
	2,870	120,330	52,959	215,832	94,531	41,572

1/ Includes Zone C which is assumed to be the same as future conditions without project.

2/ Total area of Zone A reduced by 357 acres not anticipated to receive drainage benefits from project.

3/ Total area of Zones B and C reduced by 328 acres other land and 1357 acres estimated to remain as woodland.





Basin - West Ky. Tributaries  
 Project - Bayou du Chien  
 Reach - 1  
 State - Kentucky

SUMMARY - TABLE II C  
 (Zone of No Project Benefit)  
 COMPUTATION OF AGRICULTURAL PRODUCTION: EXISTING CONDITIONS

Soil unit	Land use and crop distribution	Acres	Production	
			Unit	Per acre <sup>2/</sup> Total
All	Open land	5,327		
	Crops:			
	Corn	1,497	bu.	29 43,960
	Soybeans	1,890	bu.	17 31,224
	Hay	-	-	-
	<u>Idle</u>	-	-	-
	Pasture	1,695	-	155 262,545
	Other <sup>1/</sup>	245	-	-
	Forest land	9,678	-	-
	Total	15,005		

<sup>1/</sup> Farmsteads, farm roads, waste and non-agricultural.  
<sup>2/</sup> Calculated from Columns 3 and 6, rounded to nearest unit.



Basin - West Ky. Tributaries  
 Project - Bayou du Chien  
 Reach - 1  
 State - Kentucky

SUMMARY - TABLE III C  
 (Zone of No Project Benefit)  
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,  
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Unit	Production		Value of production		Cost of production		Net return
				Per acre	Total	Per unit	Total	Per acre	Total	
				2/		Dollars	Dollars	Dollars	Dollars	Dollars
All	Open land	5,942								
	Crops:									
	Corn	1,430	bu.	35	50,104	1.45	72,652	30.04	42,954	29,689
	Soybeans	2,024	bu.	22	44,469	2.30	102,279	27.60	55,853	46,426
	Hay	-	-	-	-	-	-	-	-	-
	Idle	-	-	-	-	-	-	-	-	-
	Pasture	2,243	lb.bf.	178	399,292	0.2004	80,019	18.10	40,592	39,427
	Other 1/	245	-	-	-	-	-	-	-	-
	Forest land	9,063				8.16	73,954	4.63	41,962	31,992
	Total	15,005					328,904		181,361	147,543

1/ Farmsteads, farm roads, waste and non-agricultural.  
 2/ Calculated from Columns 3 and 6, rounded to nearest unit.  
 3/ Calculated from Columns 3 and 10, rounded to nearest cent.

- 1) Find the area of the rectangle whose length is 10 cm and breadth is 5 cm.
- 2) Calculate the perimeter of a square whose side is 4 cm.
- 3) Find the area of a triangle whose base is 6 cm and height is 3 cm.

Area	Perimeter	Length	Breadth	Area	Perimeter
Area of rectangle	$2(l+b)$	$l$	$b$	$l \times b$	$2(l+b)$
Area of square	$4s$	$s$	$s$	$s \times s$	$4s$
Area of triangle	$2(s_1+s_2+s_3)$	$s_1$	$s_2$	$\frac{1}{2} \times b \times h$	$2(s_1+s_2+s_3)$

$$\text{Area of a circle} = \pi r^2$$

$$\text{Circumference of a circle} = 2\pi r$$

$$\text{Area of a sector} = \frac{\theta}{360} \times \pi r^2$$

$$\text{Length of an arc} = \frac{\theta}{360} \times 2\pi r$$

Area of a parallelogram = base  $\times$  height

Area of a trapezium =  $\frac{1}{2} \times (a+b) \times h$

Area of a rhombus =  $\frac{1}{2} \times d_1 \times d_2$

Area of a kite =  $\frac{1}{2} \times d_1 \times d_2$



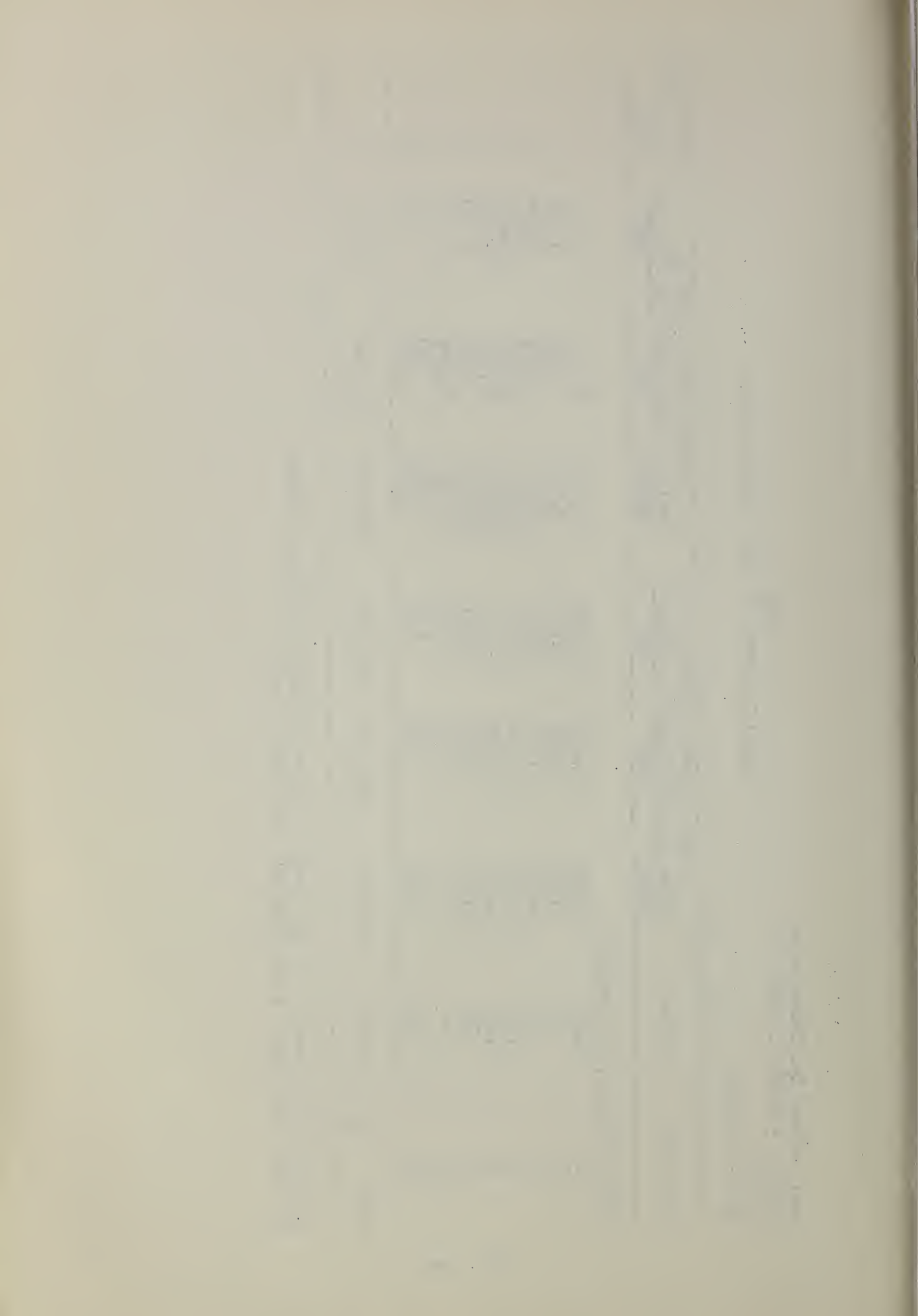
Basin - West Ky. Tributaries  
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 Reach-1  
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TABLE V  
 REACH 1 Summary by Soil Mapping Units

Soil unit	Acres	Future without project (value of production in dollars)		Future with project 1/ (value of production in dollars)		Difference In net value
		Gross	Cost	Gross	Cost	
ZONE C (Subject to flooding)						
1	4,434	70,008	38,256	70,008	38,256	0
2	111	8,168	4,430	8,168	4,430	0
6	113	6,373	3,403	6,373	3,403	0
7	2,633	114,646	61,350	114,646	61,350	0
8	5,252	64,188	37,099	64,188	37,099	0
9	230	10,276	5,536	10,276	5,536	0
10	1,747	52,940	29,974	52,940	29,974	0
11	5	363	210	363	210	0
14	235	1,918	1,088	1,918	1,088	0
Total	2/ 14,760	328,880	181,346	328,880	181,346	0

1/ Zone C is assumed to be the same as future conditions without project.

2/ Total area Zone C reduced by 245 acres "other land".



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TABLE V  
PROJECT AREA SUMMARY BY SOIL MAPPING UNITS

Soil unit	Acres	Future without project (value of production in dollars)		Future with project (value of production in dollars)		Difference in net value
		Gross	Net	Gross	Net	
ZONE A - (Not subject to flooding)						
7	875	39,672	17,722	69,526	30,971	13,249
8	129	2,845	1,120	7,188	3,290	2,170
14	7	66	30	201	102	72
Subtotal	1,011 1/	42,583	18,872	76,915	34,363	15,491
ZONES B AND C 4/ (Subject to flooding)						
1	4,434	70,008	31,752	70,008	31,752	-
2	111	8,168	3,738	8,168	3,738	-
6	113	6,373	2,970	6,373	2,970	-
7	4,155	185,372	84,239	236,327	105,723	21,484
8	5,567	71,023	30,145	80,794	34,510	4,365
9	230	10,276	4,740	10,276	4,740	-
10	1,747	52,940	22,966	52,940	22,966	-
11	5	363	153	363	153	-
14	257	2,104	918	2,548	1,150	232
Subtotal	16,619 2/	406,627	181,621	467,797	207,702	26,081
Total	17,630 3/	449,210	200,493	544,712	242,065	41,572

- 1/ Total area Zone A, less 357 acres not needing drainage or non-participation in drainage, and 435 acres estimated to remain in woodland due to non-participation in land conversions.
- 2/ Total area Zones B and C, less 1357 acres estimated to remain in woodland due to non-participation in land conversions and less 328 acres "other" land (mostly water areas).
- 3/ Total area Bayou du Chien Project, less acreages in notes 2 and 3 above.
- 4/ C Zone values assumed to be the same in the future with project as in the future without project.





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TABLE VI - SUMMARY  
 LAND CONVERSIONS WITH PROJECT

Type of conversion <u>1/</u>	Total amount	Cost of clearing	Cost of smoothing	Cost of pasture establishment	Total cost
Per acre	Acres	Dollars	Dollars <u>4/</u>	Dollars	Dollars
W to GC	-	56	-	-	56
W to P	-	56	-	40	96
P to GC	-	-	-	-	-
X to P	-	-	-	40	40
X to GC	-	-	-	-	-
GC to P	-	-	-	40	40
Project					
W to GC	242	13,552	-	-	13,552
W to P	166	9,296	-	6,640	15,936
P to GC	667	-	-	-	-
X to P	17	-	-	680	680
X to GC	93	-	-	-	-
GC to P	0	-	-	-	-
Total Project					30,168
Annual amortized value <u>2/</u>	-	-	-	-	1,653
Annual maintenance <u>3/</u>	-	-	-	1,464	1,464
Total annual cost of conversions					3,117

1/ W--woodland; GC--general crops; P--pasture; X--idle.  
2/ Amortized over 50-year period at 5 percent.  
3/ Pasture maintenance at \$8.00 per acre per year.  
4/ Included in clearing costs.



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TABLE VII - SUMMARY  
 ANALYSIS OF FARM DRAINAGE SYSTEMS COSTS

Soil mapping unit and land use	Area	Total cost		Annual equivalent cost <u>2/</u>	Annual maintenance cost	Total annual cost	
		Acres	Dollars			Dollars	Dollars
7- Cropland	1,744		41,444	5,368	4,782	10,150	
7- Pasture	258		5,125	664	197	861	
8- Cropland	257		6,107	791	705	1,496	
8- Pasture	105		2,086	270	80	350	
14- Pasture	29		576	75	22	97	
Total	2,393		55,338	7,168	5,786	12,954	

1/ Includes engineering and contingency.

2/ Amortized at 5 percent over 10 years. (0.1295)

1. *Chrysomelidae* - *Chrysomelidae* - *Chrysomelidae*  
 2. *Chrysomelidae* - *Chrysomelidae* - *Chrysomelidae*

Year	1900	1901	1902	1903	1904	1905
1. <i>Chrysomelidae</i>	100	100	100	100	100	100
2. <i>Chrysomelidae</i>	100	100	100	100	100	100
3. <i>Chrysomelidae</i>	100	100	100	100	100	100
4. <i>Chrysomelidae</i>	100	100	100	100	100	100
5. <i>Chrysomelidae</i>	100	100	100	100	100	100
6. <i>Chrysomelidae</i>	100	100	100	100	100	100
7. <i>Chrysomelidae</i>	100	100	100	100	100	100
8. <i>Chrysomelidae</i>	100	100	100	100	100	100
9. <i>Chrysomelidae</i>	100	100	100	100	100	100
10. <i>Chrysomelidae</i>	100	100	100	100	100	100

1. *Chrysomelidae* - *Chrysomelidae* - *Chrysomelidae*  
 2. *Chrysomelidae* - *Chrysomelidae* - *Chrysomelidae*

1. *Chrysomelidae* - *Chrysomelidae* - *Chrysomelidae*  
 2. *Chrysomelidae* - *Chrysomelidae* - *Chrysomelidae*



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TABLE IX  
 SUMMARY OF ANNUAL NET PRODUCTION RETURNS  
 AND ASSOCIATED COSTS

Item	Total	Discounted amount
	<u>Dollars</u>	<u>Dollars</u>
1. Net return with project	242,065	
2. Net return without project	200,493	
3. Gross benefit to project	41,572	32,956 <u>1/</u>
4. Farm drainage cost		
a. Installation cost	7,168	
b. Maintenance cost	5,786	
c. Total	12,954	10,269 <u>1/</u>
5. Conversion cost		
a. Installation cost	1,653	
b. Maintenance cost	1,464	
c. Total	3,117	2,471 <u>1/</u>

1/ Discounted for a 10 year lag at 5 percent interest.

